

RG 104 - Entry 23

Box 1, Vol 1 February 5, 1906 - July 6, 1909

1906 - 1940

Copies of Letters and Reports sent to the
Superintendent of the Denver Mint by the
Melter & Refiner's Department

I

MANN'S PARCHMENT COPYING PAPER.

(TRADE-MARK REGISTERED.)

This Parchment Paper is **MUCH STRONGER** and shows a **CLEARER COPY** than any other ever made for the purpose. The ink is **LESS LIABLE TO SPREAD** and the paper can be written upon with a pen.

DIRECTIONS FOR COPYING.

Place a piece of blotting-board under the leaf of Copying Paper; then, with brush, wet the leaf. Take off surplus water with another sheet of blotting-paper; then place the written letter on the rear, (pressing the blotting-paper under the leaf, to soak up any excess of water that may yet remain); place it in the press, and, in ten or fifteen seconds, a perfect copy will be secured.

The letter **WILL BEY AS SMOOTH AS SILK**, if the leaf is placed in the Press after drying.

Put These attachments between copies just made, to prevent bleeding or setting-off.

Another Process when many letters are to be copied.

Procure a tin or iron box, with lid, to hold 24 blotting-pads. — (Boxes furnished, if desired.)

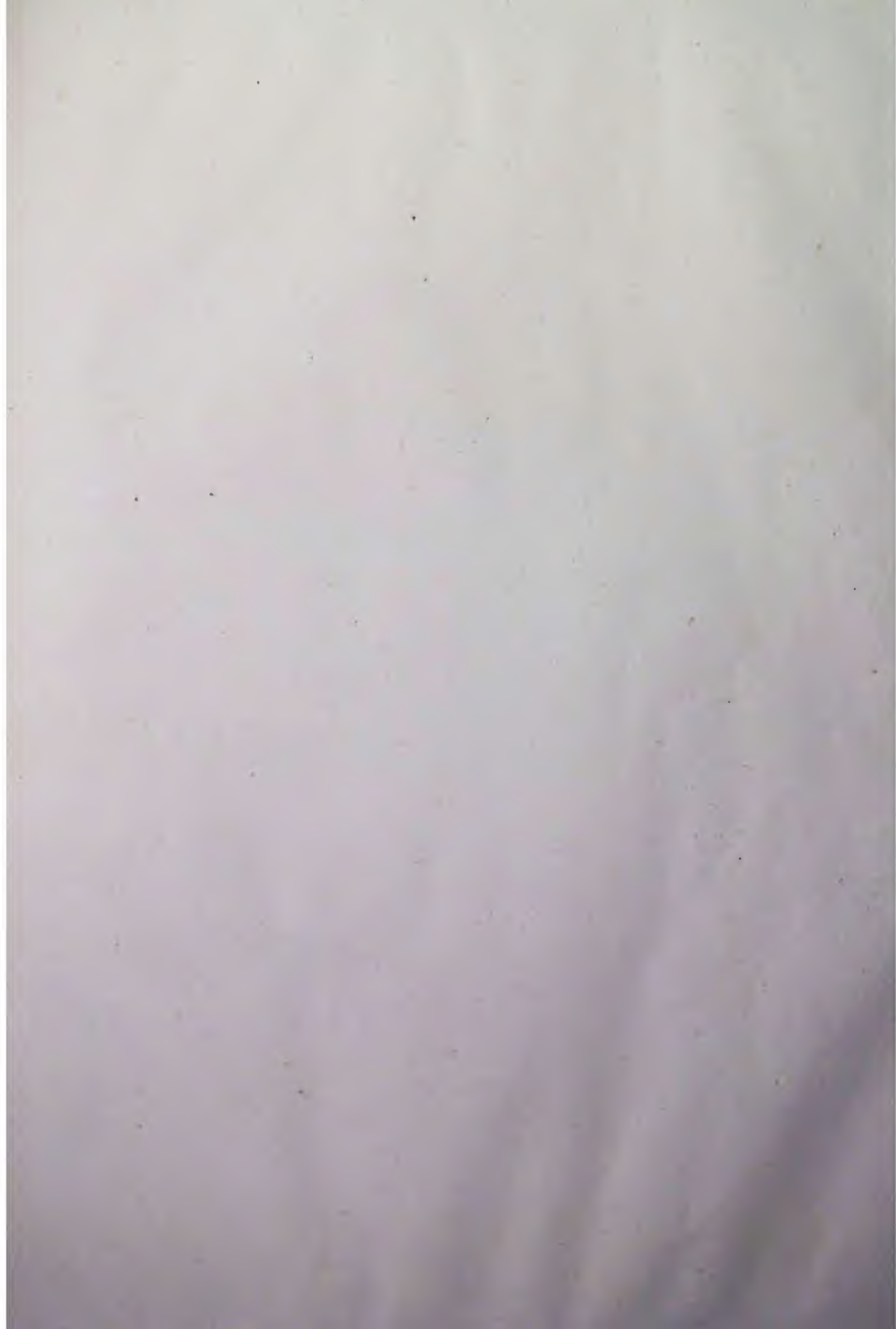
Drop half the lot of letters in water; let them drain off a few moments; then place a dry blotter between each wet one; give them a few minutes' squeeze in Press and they will remain as before; then take an all-sheet; place it to the left; then lay a wet blotter; then this leaf of Copying over on blotter; then lay your letter on; then another all-sheet, and so on; and you can copy all your letters at one time; thereby saving time. With a little care and experience, at last, as in writing, you will be so well pleased, as never to resume the old way.

HILL'S BLOTTER BATHS are the best adapted for use in this Process.

To copy **TYPE-WRITTEN LETTERS**, the leaves require **MORE MOISTURE** than they do to Copy Letters written with **PEN AND INK**.

M. & R.'s Office
U. S. MINT, DENVER

Wm. G. B. 12/11/18
G. H. B. 12/11/18





1
Denver, Colo., February 5, 1906.

Hon. Frank M. Downer,

Superintendent, U. S. Mint,

Denver, Colo.

Sir:-

I have the honor of nominating Benjamin M. Phillips for the position of assistant melter in the ingot melting room at a compensation of \$4.00 per day.

I request that the appointment be made immediately, to take effect from the date of his oath of office.

Respectfully,

Joe. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver, Colo., Feb. 5, 1906.

Hon. Frank M. Downer,

Superintendent, U. S. Mint,

Denver, Colo.

Sir:-

I have the honor of nominating George H. Spencer for the position of helper in my department at a compensation of \$3.25 per day.

I request that his appointment be made immediately, to take effect from the date of his oath of office.

Respectfully,

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver, Colo., February 6, 1906.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of calling your attention to the fact that I have no place provided for the care of the files and books of my office, other than stacking them up on a table, and they are very much in the way there, as I desire to use the table for clerical purposes. I therefore earnestly request that I be furnished with a light fire-proof safe in which to place the files and books when not in use, as well as for safe keeping outside of office hours; as these books and files are of the greatest importance, it appears to me that adequate efforts should be made to prevent any accident befalling them, and I confidently trust that you will render me the necessary assistance to that end.

I think the safe should be in size about as follows:

One book-stall 16 inches high, 16 inches wide and 18 inches deep, with 2 partitions dividing the space into 3 compartments;

Two book-stalls each 12 inches high, 15-1/2 inches wide and 18 inches deep, with one partition dividing each stall into 2 parts

Six file drawers and 6 open compartments, and one lock compartment, approximately as shown in the following diagram:

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Downer - 2



1st floor
2nd floor
3rd floor

Scale 1-1/2" to the foot.

Very respectfully,

John W. Miller
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver, Colo., February 6, 1906.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of representing that the time has come when I am in urgent need of an assistant to the Amalgamator mill man in charge of the sweeps cellar. The work in connection with our treatment of sweeps is such that it cannot be performed by one man either economically or satisfactorily, and the foreman of that room has gotten his equipment in such shape now that he is practically ready to start operations and is very anxious (as am I) to secure an assistant so that there will be no delay in the operation of said department. I think this is very necessary as we have at least four months' work ahead of us to treat the sweeps now on hand, and as we have commenced general operations in all the melting rooms the sweeps will accumulate very rapidly.

I therefore request authority to nominate an Assistant Amalgamator and Mill man for said position at a compensation of \$4.00 per day.

Respectfully,

Joe C. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver, Colo., February 6, 1906.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver, Colo.

Sir:-

The bills for 10,000 pounds of ingot copper for alloy purposes have been received, but are not O.K.'d for the following reasons: One of the casks was received in a broken condition, and the amount of copper in said cask was 21 pounds short.

I therefore return the bills herewith, and await your further advice in the premises.

Very respectfully,

Joe Wilson
Melter and Refiner.

Enclosure.

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1333

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

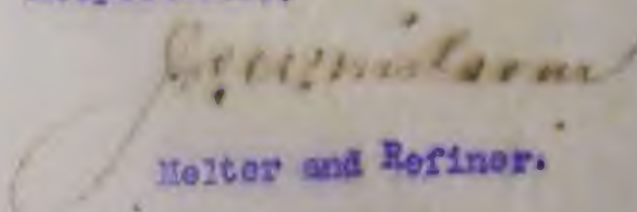
Denver, Colo., February 7, 1908.

Hon. Frank M. Downer,
Supt., U. S. Mints,
Denver, Colo.

Sir:-

I have the honor of nominating Xerxes T. Stoddard for the position
an assistant melter in my department at a compensation of \$4.00 per
day. I request that his appointment be made immediately, to become
effective upon his taking his oath of office on the 1st inst., or any
time subsequent thereto.

Respectfully,


Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINERS DEPARTMENT,

Denver, Colo., February 15, 1906.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of nominating Harry R. Whitehead as helper in my department at a salary of \$5.25 per day. I request that his appointment be made immediately to take effect upon his taking the oath of office.

Respectfully,

J. W. Milson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Denver, Colo., February 15, 1906.

Hon. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I respectfully ask permission to have McGreal, Ryan, and Peterson cut a hole through the wall of the refinery into the rolling room to tap the hot and cold water pipes, so as to get a connection on the filtering platform which will be ready for operation tomorrow. It will be necessary that this work be done after 4 p.m.; and it will require several hours to make the necessary connections. I would like to have the men start in today.

Very respectfully,

Assistant Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Denver, Colo., February 15, 1906.

Mr. F. E. Healy,
Supt. Machinery,
U. S. Mint., Denver.

Sir:-

I notice the electrician and pipe-fitter are using the refinery store-room to store their waste pipe and electrical wires, etc. Please have this stuff removed, as we wish to clean this room and put it in thorough shape.

Respectfully,

Assistant Melter and Refiner.

R. K. W.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

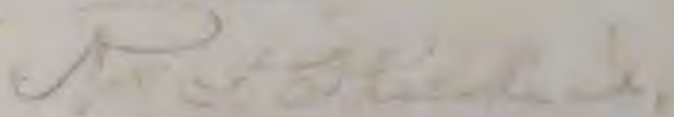
Denver, Colo., February 16, 1906.

Mr. F. E. Healy,
Supt. Machinery,
U. S. Mint, Denver.

Sir:-

Please have carpenter put in two floors on filtering platform in refinery the first thing in the morning, if possible. Also have electrician put an extension light in Vault G in the make-up room sufficiently long to reach to either end of the vault. This is also a rush job.

Respectfully,



Acting Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver, Colo., February 17, 1906.

Hon. Frank H. Downer,
Custodian U. S. Mint,
Denver, Colo.

Sir:-

I have the honor to report that due consideration has been had of the communication of the Supervising Architect, under date of the 18th inst., and inclosure 7082 accompanying same, referred to this department on yesterday.

The shall safe as described is sufficient and satisfactory. With reference to the diagram of interior fittings, and the notation thereon that "it is not clear whether the custodian intends this to be a drawer or a compartment covered with a wooden or metal door hinged at the right side. He should state which", I beg to recommend that the same be made a compartment covered with a metal door hinged at the right side with flat key lock on the left side of said door.

Respectfully,

Joe. Milner
Melter and Refiner.

SI

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

February 23, 1906.

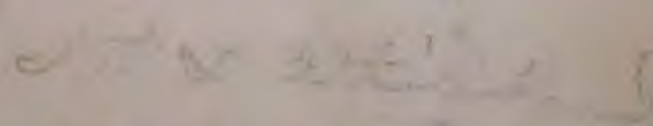
Hon. Frank H. Dowser,

Supt. U. S. Mint, Denver.

Sir:-

Please have Superintendent of Machinery, Mr. Healy order 8-1/2 dozen half-eagle molds, the dimensions for which are now in his office. Also fix up, according to instructions, 12 small molds. These molds have to go through the machine shop after they have been cast, and planed down to a smooth surface. Also please have 43 ingot boxes lined with 1/32" sheet copper and 12 large ingot boxes so lined. The copper for this work is on hand in the lead-burner's shop. As we expect to start on gold again next week, it is very necessary that we have copper lined boxes to hold our ingots. At the present time we have only six three in the refinery and three in the ingot melting room.

Very respectfully,



Acting Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

February 23, 1906.

Mr. Daniel Brady,
Foreman Deposit Making Room,
U. S. Mint, Denver.

Sir:-

Please turn over the key to the sweeps cellar which I believe
is now in your possession to the foreman, Mr. Smith, and oblige

Yours respectfully,

W. L. Richardson

Acting Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

February 23, 1906.

Hon. Frank H. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

Attached to this letter is a rough sketch of an acid hood which we wish constructed so as to fit on the lower end of the gold cells; the lower part of hood to be made of oak or hard wood; all four sides of hood to be glass; top of hood to be made of eight-ounce sheet lead, with an 8 inch pipe connection entering the main exhaust pipe from the condenser.

We should like to have the carpenter fix this as soon as possible so that we can shift our porous cells from the main acid hood to this location. Any details necessary for the construction of this hood will be furnished upon application by the superintendent of machinery.

Very respectfully,

W. H. ...
Assistant Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

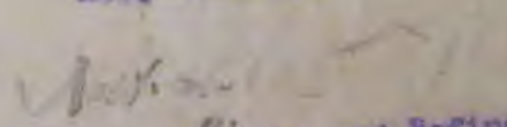
February 26, 1906.

Hon. Jos. W. Milsore,
Melter and Refiner,
U. S. Mint, City.

Sir:-

Due to the fact that we have green men on at night in the refinery who are not familiar with electrical machinery, I recommend that an electrician be put on who can be called in in case there is any trouble with the dynamos furnishing the current for the electrolytic refining. It is absolutely necessary that some action be taken in this matter to prevent injury to the machinery.

Respectfully,


Assistant Melter and Refiner.

Feb. 26, 1906.

Hon. Frank M. Downer,
Supt. U. S. Mint.

Sir:-

I have given the above matter due consideration and heartily endorse the recommendation of Mr. Whithead. I think the putting on of an electrician will save very much more than his wages in protection to our machinery. I earnestly suggest that action be taken at the earliest moment possible.

Very respectfully,

Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

February 26, 1906.

Hon. Frank E. Sawyer,

Super. U. S. Mint,

City.

SIR:-

I herewith submit a report of authorized overtime from Jan.

1905 to date:

Jan. 31	Patrick Ryan	4 hours
	Joe Peterson	4 "

Jan. 31	E.V. McCreel	3 hours
	Joe Peterson	2 "
	Patrick Ryan	2 "

Feb. 2	E.V. McCreel	2 "
	Patrick Ryan	2 "
	Joe Peterson	2 "

Feb. 11 (Sunday)	Wardner	8 hours
	McCreel	2 "
	Wardner	2 "
	Wardner	2 "

Feb. 12	McCreel	2 "
	Ryan	2 "
	Peterson	2 "

Feb. 14	McCreel	2 "
	Wardner	2 "
	Wardner	2 "

Feb. 15	Wardner	2 "
	Wardner	2 "

1. *Journal of the American Medical Association*, 1997; 277: 1033-1037.

MELTER AND REFINERS OF BULLION BALANCES

Minist of the United States at London, *Philadelphia*

Gold and Silver Bullion Bolanows in the Melter and Refiners hands and Receipts from and deliveries to the Superintendent of the Mint by him during the month of February, 1906

GOLD

STANDARD ORDER		STANDARD RETURN	
	8 185 619 191 075 109		29 705 109
Deliivered	Ingotte		
	Bare, Free		
	Bare, Standard		
	Bare, Unperished		
	Bare		
	Servise		
Balance	October 31,	1106.	175 747 083
	200 460 793		201 460 793

SILVER.

[illegible]

March 1891

Callinidaea

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

March 1, 1906.

Hon. Frank M. Downer,

Supt. U. S. Mint,

Denver, Colo.

Sir:-

Supplementing this department's requisition No. 98, under date of February 27, 1906, this department is in need of the articles therein enumerated, to wit: porcelain ware, 4 jars, fig. 01840, capacity 108 litres; 8 tanks, No. 1577, dimensions 18"x15"x12"; 4 vessels similar to fig. 01773, and same as heretofore furnished, with sieve-plate and stop-cock for each and 4 extra stop-cocks for same vessels; and the following earthenware, 3 vessels similar to fig. 148 (and same as heretofore furnished) with sieve-plate and stop-cock for each and also 3 extra stop-cocks for these vessels.

I respectfully request that you procure a proposition for these articles from Frederick Berkeish & Co., Room 607 Empire Court Building, New York, which is the only firm that I know of that can furnish these goods.

Respectfully,

John J. ...
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver, March 8, 1906.

Hon. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I have the honor as well as the pleasure of hereby responding to your request of this forenoon for information regarding progress in the Melter and Refiner's Department.

February 1st, we began the operation of parting in the Refinery with four gold cells, which we have now increased to fourteen (the maximum number that we can operate with our present force). On February 7th we received from the Refinery our first fine gold melt which weighed 5849.39 oz., of a fineness of 999.2, which was the lowest fineness that we have produced, and that was caused by the lack of fine gold for making our cathodes; that which we used for that purpose being only 995 fine; however, as we progressed with our work, using constantly increasing fine gold for making cathodes, the fineness increased until our last melt (No. 96) weighing 7528.25 oz. received yesterday (and being the product of seven cells running 48 hours) was of a fineness of 999.29 plus. In fact, two of the assays checked perfectly with the proof gold used. Having thus proven conclusively that we can make practically pure gold, we shall hereafter confine our energies more to increasing the production, feeling confident that the fineness will take care of itself, and run 999.7 (which is the average of the last dozen

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

BUREAU - 2

to 999.9. The total amount received from the Refinery, February 7 to March 7, inclusive, was 183,414.74 ozs. gross, of an average fineness of 999.804 plus.

In February 20th we delivered to you our first melt of gold ingots, and on that and subsequent days including today, we have delivered 91,937.77 standard ounces of Eagle ingots of an average fineness of 999.878 plus; and 27,868.09 standard ounces of double Eagle ingots of an average fineness of 999.9 plus.

We have not yet operated our silver cells, but have done considerable experimental work relating to them, and Mr. Shithead is quite confident that later he will have some pleasant news to communicate on that line.

With an earnest desire to strengthen our weakest point, I will call your attention to our Refinery Melting room. At your suggestion, I have transferred Charles W. Dakin from the Deposit Melting room to the Refinery Melting room, and while that helps the situation to the extent that it relieves others in the ^{hot} work, yet it does not cure the weak spot, which is the small space and intense heat caused by our inability to ventilate the room. As you remember, the space is very limited, and the only windows are two small ones opening to the south, and with the oil fuel the heat is so intense that it is difficult to work with two furnaces operating, and of course such more so to use the three furnaces at the same time, and when you consider the fact that all the gold to operate

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Downer - 5

upon is melted about two and one-half times in that run, that is, first, it is melted and cast into Anodes; second the anodes are melted and cast into fine bars, and third, the undissolved portions of the anodes have to be remelted, not to mention the kind of sweats, etc.,--it does appear that it will be absolutely necessary to make some provision to relieve the intense heat before the warm weather arrives, as well as to permit us to do the additional work that will become necessary by the increase of partings the Refinery. Moreover, for the purpose of perfecting all our operations, we should have a small reverberatory copper furnace, of one-half ton capacity, so that we could produce a copper anode for alloy purposes; such a furnace would not be expensive, in my opinion would effect a saving of its full cost in from one to two years, as our gold deposits contain considerable copper evidenced by the fact that we already have accumulated about 50 lbs. If the Refinery melting room could be enlarged in some, it would give us the room for placing such a furnace.

The work of fitting up our Sweeps cellar has been slow, owing to the fact that everybody was so busy perfecting inside equipment that we had to rely upon the sweep cellar foreman most of the work; however, the foreman and his assistants were to be competent men, and they now have the hot and cold water steam and sewer pipes all run and connections made, including coils for heating purposes, and we expect to start the mill today

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Despatch

NOTE.

silver
operations on uncirculated coin are represented by the de-
livered ingots containing 177,360.50 standard ounces.

Respectfully submitted,

J. M. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER.
MELTER AND REFINER'S DEPARTMENT.

March 12, 1907.

Hon. Frank M. Sawyer,
Capt. U. S. Mint,
Denver, Colo.

Sir:-

Reluctant as I am at the present time to touch this subject, yet I feel the absolute necessity of bringing your attention to the necessary and ingot melting room. On Sunday last two of the millmen--one cell man and the helper--were sick, and I could at the time find only one substitute to take the place of the two men who were off duty. This has occurred several times with one exception, but never before with two in that department. Therefore, if the present employees were present occasionally, we will have more work than they can possibly do within the hours of their labor.

As to the ingot melting room, the force at the present time consists of the foreman, one assistant helper and one helper, and we have been confronted in the past with the following accidents. One of the helpers was injured while at work; a few days later the foreman was afflicted with a very severe cold which practically incapacitated his work, and on yesterday the assistant helper was injured while at work. This is nothing new and nothing extraordinary of the kind in the ingot melting room, and the new, efficient equipment of the millmen will be the means of the cause of the most careful and best work.

I hope that you will be able to do the best work.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Memorandum - 2

Very much the same of experience to the lowest point compatible with good work and economy. It does seem to me, considering these things, that I should have an additional day helper in the refinery and an assistant melter in the ingot melting room. I therefore respectfully and earnestly request authority to appoint an additional helper in the refinery and an assistant melter in the ingot melting room.

Trusting that I may be advised with reference to this matter at the earliest convenient moment, I remain

Very respectfully,

J. W. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

TO REFINERY EMPLOYEES:

It has come to my knowledge that a proper degree of carefulness is not always displayed in connection with your work; porcelain and earthenware is sometimes handled without due consideration of its brittleness, and solutions are occasionally spilled without any serious thought of their value.

Unnecessary losses must be prevented in some way, and, as a preliminary step in that direction, the foreman is hereby ordered to report to me the names of employees causing losses of any kind, together with the approximate amount of the loss in each case. Such data will be preserved for the purpose of intelligently estimating the character and value of your services as employees.

J. C. Williams
Melter and Refiner.

March 20, 1906.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

March 30, 1908.

Hon. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of hereby nominating Benjamin M. Phillips
for the position of helper in the Refinery. I request that his
appointment be made to take effect April 2, 1908.

Very respectfully,

John W. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

March 31, 1906.

Hon. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I have the honor to hereby nominate Karl G. Bell for the position of helper in the refinery. I recommend that his appointment be made immediately, to take effect on April 2, 1906.

Very respectfully,

J. C. Wilson
Melter and Refiner.

Print of the United States at *Denver Colorado*
Residence to the

Gold and Silver Bullion Balances in the Melter and Refiners hands and Receipts from and Payments to the Superintendent of the Mint by him during the month of March 1906.

STANDARD INDEX

March 1

20

175	747	063
653	453	647

Ingots 3551 (2357 g; 1200 d.f.)

241.563 1990

presented by First Deputy
Minister to allow Deputy
Minister to

57 684 360

all covered

Ingot 35

Bars, Fine

Bars, Standard

Bars, U.S. Patent

Bars

Swedish

Delivered
March 31

二

$$\begin{array}{r} 645 \text{ } 321 \text{ } 700 \\ \hline 886 \text{ } 885 \text{ } 090 \end{array}$$

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March 1

20

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Delivered

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Alacuan? J. com

33 133 50
33 567 05

March 31


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French M. Brown

Chenopodium album L. 1991f

MINT OF THE UNITED STATES AT DENVER.
MELTER AND REFINER'S DEPARTMENT.

Denver, April 10, 1905.

Hon. Frank S. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

On the 2d inst. and again on the 5th we were compelled to close down some of our gold cells temporarily, and last night we had to shut three out entirely for lack of anodes, caused by the inability of the Refinery melting room to get a sufficient quantity ahead to run over Sunday. The melting room crew is first class in every respect, willing and anxious to keep up with their work, but it is practically impossible to do it by working six days of eight hours each, while the Refinery runs seven days of twenty-four hours each. It is not alone the fact that the melting room gets behind with its anode and fine gold melts, but the floor sweeps are accumulating constantly with but very rare opportunities for making sweats to reduce them; and further, the operation of the silver cells, which we have commenced, makes additional work in said melting room; and as we cannot possibly add another furnace to our equipment on account of lack of space, it appears to be absolutely necessary to either reduce the number of gold cells in commission, or make arrangements for a limited amount of overtime work for said melting force.

I am not in favor of Sunday work, where it can be avoided, and I therefore recommend that the Refinery melting room force, for

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Form No. 2

requesting that Boyle, Lakin, Stoddard, and Bucher, be permitted and
authorized to work overtime each day, when necessary, sufficiently
long to make one additional melt, but not exceeding two hours.

Respectfully,

Joseph W. Milcom
Melter and Refiner.

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MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver, April 13, 1909.

Hon. Frank H. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of respectfully submitting for your consideration and disposition the following facts and recommendations relating to the Refinery melting room:

When the question of finding a suitable place for a Refinery melting room was originally taken up, I recommended cutting off the south end of the machinery room for that purpose; but, upon a full consideration, it was found that the machinery department could not spare any of its space; and then the proposition of cutting off the south end of the adjusting room was broached. This seemed an ideal place for the melting room, as it connected directly with the east end of the Refinery and was not only large enough for our equipment, but contained a big east window to assist in the matter of ventilation. However, owing to the objection of the Engineer, we went only part of the way across the adjusting room, which left the melting room much too small, and with its only openings a door into the Refinery and one and one-half windows with a south exposure; so that we were precluded from any possibility of satisfactory ventilation or increase of equipment.

The work of the last two months has shown conclusively that with the use of oil fuel the heat is so intense that it is very

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Downer - 2

difficult to do the work in our present quarters; and before the heat of summer is added through the south windows, some remedy must be found, and I know of none unless it be by enlarging the room and giving better ventilation. At present we have three furnaces in commission, usually using two for melts and one for sweats, and as I informed you in a communication under date of the 10th inst., we cannot at the present time keep up with the necessary work in that room; but if it is enlarged, we can immediately add another furnace which will assist materially in doing the work as well as fortifying us against possible break-downs. And it seems that the necessity for such changes and additional equipment must be conceded when consideration is had of the fact that in that room we melt all the gold operated upon in this mint about two and one-half times, and this week we commenced operating two silver cells which, as we add more cells, will still further increase the work. I therefore recommend that the Refinery melting room be extended all the way across the south end of the adjusting room so as to give us an east window for ventilation and space for additional equipment.

Respectfully,

J. C. Williams
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Denver, Colo., April 13, 1906.

Hon. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I have the honor to respond to that portion of the Director's communication of February 28th regarding fuel oil, referred to this department, as follows:

We are using distillate oil for fuel purposes in all of our furnaces for which we are paying 5-1/2¢ per gallon, and for the fiscal year beginning July 1st, 1906, we shall need approximately sixty thousand (60,000) gallons in the Melter and Refiner's Department.

Respectfully,

John Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER.
MELTER AND REFINER'S DEPARTMENT.

Denver, April 16, 1908.

Jon. W. Wilson, Esq.,

Melter and Refiner,

U. S. Mint, Denver, Colo.

Sir:-

As per request, I desire to make the following report on the melting furnace equipment furnished by the Rockwell Engineering Co. of New York for the Melter and Refiner's Department, United States Mint, Denver, Colorado:

The melting rooms are equipped as follows: The Refinery melting room with three furnaces to fit No. 60 to No. 80 Black Lead Crucibles; the Ingot melting room with eight furnaces of the same type and size; the Deposit melting room with three small furnaces of a different type, for crucibles from Nos. 14 to 30, and one large size for Nos. 60 to 80 crucibles.

The Refinery melting room is supplied with blast from a No. 3 Sturtevant Blower driven by a 7-1/2 H. P. Bullock motor, capacity of blower 650 cubic feet of air per minute at an average pressure at the burner of 11 ounces.

The Ingot melting room is supplied with air from a No. 5 Sturtevant Blower driven by a 15 H.P. Bullock motor, with an estimated capacity of 750 cubic feet of air per minute, with an average pressure at the burner of 11 ounces.

The Deposit melting room is supplied with air from a No. 4

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

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Sturtevant Blower driven by a 10 H.P. Bullock motor, giving 700 cubic feet of air per minute, with an average pressure of blast of 11 ounces.

It will be seen from the above that each melting room is independent of the others as to its source of air; however, the Ingot and Deposit melting rooms supply lines are "by passed" so that either fan will supply blast in case of break down.

A close investigation of the long line of pipe from the the oil pumps in the basement shows the joints to be absolutely tight, allowing no leakage of oil into the building which would render a disagreeable odor.

The pumping system in the basement consists of two duplex steam pumps of a special design, for heating the oil by exhaust steam, thereby placing the oil at the burners heated to a temperature of 95 degrees F., which facilitates the complete combustion of the oil, thus reducing the amount of carbon deposited in the combustion chamber to a minimum.

The pumps are connected to two storage tanks with a capacity of 10,000 gallons each crude oil, so connected as to pump from either, and so that while using from one the other can be filled. This furnishes an easy way of ascertaining the quantity of oil consumed.

After using both crude oil and distillate, it has been found that the distillate gives the best results, being a thinner oil,

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Wilson - 3

flowing more uniformly in the pipes, and giving a steady supply of oil at the burners, which insures a uniform heat, and very little adjusting of the burners.

The furnaces are constructed of steel plate and angle iron firmly bolted together, the only cast iron being the top plate. This insures the furnace from danger of cracking, which is so often the case when such a high heat is maintained. The furnaces are lined with best grade of Colorado fire brick; and with the higher heat obtained over gas, the bricks last from two to three months constant use. This is about the same as gas.

The wear and tear on the crucible from the high heat (2800 degrees to 2800 degrees F.) is less than in gas furnaces, due principally to the fact that in the latter furnaces of a similar type, the combustion takes place directly against the sides of the crucibles, gradually "scaling" the outside, and where the crucibles are defective, cutting a hole, thereby causing a broken pot. With the present furnace, the combustion chamber is to the right of the bottom of the pot, so that the force of the combustion is broken by the bricks, and the heat circulates around the crucible before going into the condensing flues. This is noticeable, as our crucibles do not scale until after eight melts. At the present time we are getting from 12 to 15 melts out of a crucible. This means from 60,000 to 70,000 ounces of gold. The melts of both fine and anode gold are made in 25 per cent less time than with gas. During the month of March, 1906, the Refinery melting

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Milson - 4

room melted approximately 500,000 ounces of all kind of gold with a consumption of 2,000 gallons of oil. This figures out \$110 for fuel, or 22¢ per thousand ounces melted. Gas furnaces would figure out about 38¢ per thousand ounces. With the work turned out in this melting room, it would have required 5 gas furnaces, instead of three fuel oil furnaces as now equipped. The results obtained here are much better than results obtained elsewhere where comparative tests have been run.

The work of the Ingot melting room is noticeable from the point of cost and losses of metal. The production for February and March was 277,445.41 standard ounces gold and 208,715.09 silver. The amount of oil consumed was approximately 3450 gallons, at a cost of \$34.75 which equals 27¢ per thousand ounces melted; and the apparent loss in the melting room in gold .25 ounces per 1,000 ounces, and silver .17 oz. per 1,000 ounces. In view of the fact that the weeps and flue dust are yet to be taken into account, it would indicate that the amount of copper added for oxidation would offset our loss in melting.

The results in the Deposit melting room are even more flattering. Five melts are now made where only three could be made with gas. The consumption of gas in December and January, averaged \$84.00. The present consumption of oil is thirty gallons per day or \$4 per month. This shows a saving of nearly 50%. The melts are made in about half the time formerly taken.

MINT OF THE UNITED STATES AT DENVER
MELTER AND REFINER'S DEPARTMENT.

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It is my opinion that a quick high heat is to be desired; the less time the metal is exposed to a melting heat the smaller volatilization loss. A longer heat required to get a sufficiently high temperature for proper mixture before pouring will cause a higher loss than a short heat from 200 degrees to 30 degrees F. in excess of the pouring temperature, which are about the results as obtained with the present equipment.

Another feature of the present equipment which should not be lost sight of, is the cost of repairing as compared to gas furnaces. The iron nozzles of the gas burners burn off and have to be replaced which means dismantling the furnace to replace them; also the brick linings are more expensive and difficult to repair.

In the case of fuel oil, the only part of the furnace which is perishable is the fire brick nozzle which is lined with ^{is} carborundum. This ^{is} easily replaced from the inside of the combustion chamber; while the lining of the furnace consists, with one exception of 9 inch fire brick, and the furnace can be repaired without removing any of the parts. A half day is all the time required for the work; in gas furnaces I have seen as much as two days consumed in relining and putting together a furnace.

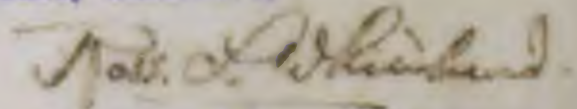
In conclusion, I wish to recommend our equipment as entirely satisfactory from every point of view. Of course it is not expected that the furnaces are perfection or that we will ever attain that degree in a melting furnace. There are ^{times} when there

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

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is trouble, but by maintaining a uniform pressure of air, a constant and steady flow of oil to the burners with the oil heated to a uniform temperature when it reaches the burners, the furnace men will have little trouble in getting the results desired for good clean work. I consider the equipment as installed by the Rockwell Engineering Co. and as now operated here superior to any equipment in the mint service.

Respectfully submitted,



Assistant Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver, April 18, 1906.

Hon. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of presenting the following as my estimate of the supplies necessary for the use of the Melter and Refiner's department, for the fiscal year commencing July 1., 1906:

Graphite crucibles, Dixon's No. 70 mint special	300
" " " " 30 - - -	50
" " " " 20 straight edge special	400
" " " " 14 - - -	400
" covers for " " 90 or crucibles	20
" " " " 70 mint special	100
" 4" rings " " 70 " "	125
" 2" " " " 70 " "	75
" stirrers, mint special, gold	50
" " plain, 14-1/2"	50
" " " 8-1/2"	400
" dipping cups, Dixon's No. 2	125
" " " " 3	250
" " " " 5	25
Clay Crucibles, Battersea "E"	400
Fire clay, bent	1000 lbs

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

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Lump charcoal	-	-	-	-	400 lbs.
Best lard	-	-	-	-	500 "
Lamp black	-	-	-	-	20 "
Benzine	-	-	-	-	15 gals.
Sulphuric Acid, Commercial 36° B	-	-	-	-	10,000 lbs.
Nitric Acid	"	-	-	-	25,000 "
Hydrochloric Acid	"	-	-	-	130,000 "
Bone ash, as per sample	-	-	-	-	7 bbls.
Saltpetre	-	-	-	-	6 "
Soda ash	-	-	-	-	6 "
Borax (ground) fused)	-	-	-	-	8 "
Silver sand	-	-	-	-	4 "
Cryolite, fine	-	-	-	-	5 "
Ground charcoal	-	-	-	-	15 "
Gelatine	-	-	-	-	200 lbs.
Ammonium Chloride, commercial, ground fine	-	-	-	-	50 "
Ferrous sulphate of iron (green vitriol)	-	-	-	-	12 bbls.
Qualin	-	-	-	-	3 bolts
Cotton duck	-	-	-	-	1 "
Rubber gloves, white flexible, best grade (sample to be submitted)	-	-	-	-	14 doz prs.
Rubber aprons (white rubber)	-	-	-	-	1 "
Leather gloves, buckskin or equivalent	-	-	-	-	100 prs.
Gauntlets, black rubber	-	-	-	-	4 doz prs.
Water hose, 5 ply, 3/4" diameter	-	-	-	-	100 ft.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

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2 doz plain white 1 gallon pitchers					
2 " " " plates					
Towelling	-	-	-	-	1 bolt
Asbestos mitts, as per sample	-	-	-	-	200
Carpet " " " "	-	-	-	-	300
Quicksilver	-	-	-	-	200 lbs.
Brass screen, 80 mesh,	-	-	-	-	1200 sq. ft.
C.P. Nitric acid	-	-	-	-	500 lbs.
" Hydrochloric acid	-	-	-	-	500 "
" Sulphuric "	-	-	-	-	100 "
" Ammonia	-	-	-	-	250 "
" Acetic acid	-	-	-	-	50 "
Methyl alcohol	-	-	-	-	10 gals.
Rubber stoppers, assorted	-	-	-	-	1 gross
Pure red rubber hose, 1/8" diameter	-	-	-	-	50 ft.
" " " " 1/4" "	-	-	-	-	25 "
" " " " 3/8" "	-	-	-	-	20 "
" " " " 5/8" "	-	-	-	-	10 "
Iron gauze	-	-	-	-	6 ft.
Brass "	-	-	-	-	6 "

Respectfully submitted,

Joseph Milner
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER.
MELTER AND REFINER'S DEPARTMENT.

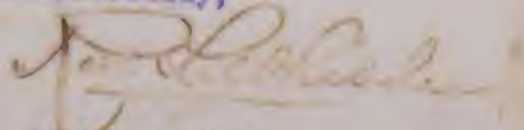
Denver, April 18, 1906.

Jos. W. Wilson, Esq.,
Melter and Refiner,
U. S. Mint, Denver.

Sir:-

I treated 870.45 ounces of clippings with gasoline, and found the difference of weight to be .05 of an ounce. This figure is of an ounce per thousand ounces. On the present production of the coining room, say, 300,000 ounces, of which 35% are returned, or 105,000 ounces, this difference would be 7.35 ounces. The difference is caused by the dirt and dust in the room adhering to the clippings. While this is not a large difference, still it is sufficient to call their attention to it, so that they can cut down their oil to a minimum.

Respectfully,



Assistant Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

April 20, 1906.

Mr. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

Of the 15,027.33 standard ounces of gold clippings received from you on the 16th inst., we treated 670.45 ounces with gasoline and after thoroughly cleaning them they weighed 670.40 ounces, showing a loss of .05 of an ounce, or, at the rate of .074576 loss per thousand ounces; and based on the present amount of coinage (about 270,000 standard ounces, of which approximately forty per cent, or 108,000 ounces are returned in clippings), the loss to our department would be 8.4542 ounces per month. The indications are that this loss is caused by an excess of oil from the cutting machines getting on the strips making the dirt and dust of the rolling room adhere to them. At the San Francisco mint the allowance on this point is 1 ounce to 24,000; but the above ratio would indicate the necessity of an allowance at our mint of 1 ounce to 118,400.

I do not desire at this time to make any recommendation in this process, but I deem the matter of sufficient importance to present for your consideration.

Respectfully,

Joseph W. Milson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

April 20, 1906.

Mr. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

Of the 16,027.33 standard ounces of gold clippings received from you on the 16th inst., we treated 870.45 ounces with gasoline and after thoroughly cleaning them they weighed 870.40 ounces, showing a loss of .05 of an ounce, or, at the rate of .074876 loss per thousand ounces; and based on the present amount of coinage (about 270,000 standard ounces, of which approximately forty per cent, or 108,000 ounces are returned in clippings), the loss to our department would be 8.4642 ounces per month. The indications are that this loss is caused by an excess of oil from the cutting machines getting on the strips making the dirt and dust of the rolling room adhere to them. At the San Francisco mint the allowance on this point is 1 ounce to 24,000; but the above ratio would indicate the necessity of an allowance at our mint of 1 ounce to 13,400.

I do not desire at this time to make any recommendation in this premises, but I deem the matter of sufficient importance to present for your consideration.

Respectfully,

Joseph W. Wilson
Melter and Refiner.

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MINT OF THE UNITED STATES AT DENVER.
MELTER AND REFINER'S DEPARTMENT.

Denver, April 18, 1906.

Hon. Frank M. Downer,

Supt. U. S. Mint, Denver, Colo.

Sir:-

Responding to your request of the 14th inst., I have the honor of presenting the following report on the melting furnace equipment furnished by the Rockwell Engineering Co. of New York for the Melter and Refiner's Department, United States Mint, Denver, Colorado:

The melting rooms are equipped as follows: The Refinery melting room with three furnaces to fit No. 80 to No. 80 graphite crucibles; the Ingot melting room with eight furnaces of the same type and size; the Deposit melting room with three small furnaces of a different type, for crucibles from Nos. 14 to 30, and one large size for Nos. 80 to 80 crucibles.

The Refinery melting room is supplied with blast from a No. 3 Sturtevant Blower driven by a 7-1/2 H.P. Bullock motor, capacity of blower 650 cubic feet of air per minute at an average pressure at the burner of 11 ounces.

The Ingot melting room is supplied with air from a No. 5 Sturtevant Blower driven by a 15 H.P. Bullock motor, with an estimated capacity of 750 cubic feet of air per minute, with an average pressure at the burner of 11 ounces.

The Deposit melting room is supplied with air from a No. 4 Sturtevant Blower driven by a 10 H.P. Bullock motor, giving 700 cubic feet of air per minute, with an average pressure of blast of

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Downer - 2

11 ounces.

It will be seen from the above that each melting room is independent of the others as to its source of air; however, the Ingot and Deposit melting rooms supply lines are "by passed" so that either fan will supply blast in case of break down.

A close investigation of the long line of pipe from the oil pumps in the basement shows the joints to be absolutely tight, and up to the present time there has been no leakage of oil into the building which would render a disagreeable odor.

The pumping system in the basement consists of two duplex steam pumps of a special design, for heating the oil by exhaust steam, thereby placing the oil at the burners heated to a temperature of 85 degrees F., which facilitates the complete combustion of the oil, thus reducing the amount of carbon deposited in the combustion chamber to a minimum. The pumps are connected to two storage tanks with a capacity of 10,000 gallons each crude oil, so connected as to pump from either, and ^{so} that while using from one the other can be filled. This furnishes an easy way of ascertaining the quantity of oil consumed.

After using both crude oil and distillate, it has been found that the distillate gives the best results, being a thinner oil, flowing more uniformly in the pipes, and giving a steady supply of oil at the burners, which insures a uniform heat, and very little adjusting of the burners.

The furnaces in the Ingot and Refinery melting rooms are constructed of steel plate and angle iron firmly bolted together, the

MINY OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

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only cast iron being the top plate. This insures the furnace from danger of cracking, which is so often the case when such a high heat is maintained. The furnaces are lined with best grade of Colorado fire brick; and with the higher heat obtained over gas, the bricks last from two to three months constant use. This is about the same as gas.

The furnaces in the Deposit melting room were originally constructed the same as those referred to in the foregoing paragraph; but being desirous of avoiding the unusual heat that emanated from them, we took off the cast iron top, slides, etc., and re-covered the top of each furnace with a heavy flat fire clay plate, cutting a hole in the center of same about two inches larger, in diameter, than the crucible to be used, placing a fire clay ring 4-1/2" high around said hole, and when in use covering the same with a graphite cover, and retaining the hood used on our old gas furnaces, which has completely eliminated the excessive heat from the exterior of the furnaces. We also reduced the size of the outlet from the furnace into the condensing flue about one-half, which has materially shortened the time of making melts and apparently without endangering the life of the furnace lining, as the opening being so much smaller necessarily reduced the span of the arch over same and correspondingly reduced the strain on said arch, which is the weakest place in the lining.

The wear and tear on the crucible from the high heat (2800 to 2900 degrees F.) is less than in gas furnaces, due principally

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

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to the fact that in the latter furnaces of a similar type, the combustion takes place directly against the sides of the crucible, gradually "scaling" the outside, and where the crucible is defective, cutting a hole, thereby causing a broken pot. With the present furnace, the combustion chamber is to the right of the bottom of the pot, so that the force of the combustion is broken by the bricks, and the heat circulates around the crucible before going into the condensing flues. This is noticeable, as our crucibles do not scale until after eight melts. At the present time we are getting from 12 to 15 melts out of a crucible. This means from 50,000 to 70,000 ounces of gold. The melts of both fine and anode gold are made in 25 per cent less time than with gas. During the month of March, 1906, the Refinery melting room melted approximately 500,000 ounces of all kind of gold with a consumption of 2,000 gallons of oil. This figures out \$110 for fuel, or 22¢ per thousand ounces melted. Gas furnaces would figure out about 33¢ per thousand ounces. With the work turned out in this melting room, it would have required 5 gas furnaces, instead of three fuel oil furnaces as now equipped. I am informed that the results obtained here are much better than results obtained elsewhere where comparative tests have been run.

The work of the Ingot melting room is noticeable from the point of cost and losses of metal. The production for February and March was 377,445.41 standard ounces of gold and 208,715.09 silver. The amount of oil consumed was approximately 2450 gallons, at a

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

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cost of \$134.75, which is less than 28¢ per thousand ounces melted; and the apparent loss in the melting room in gold .35 ounces per 1,000 ounces, and silver .17 per 1,000 ounces. In view of the fact that the sweeps and flue dust are yet to be taken into account it would indicate that the amount of copper added for oxidation would nearly offset our loss in melting.

The results in the Deposit melting room are even more flattering. Five melts are now made where only three could be made with gas. The consumption of gas in December and January averaged \$84.00. The present consumption of oil is thirty gallons per day or \$45.00 per month. This shows a saving of nearly 50%. The melts are made in about three-fifths the time formerly taken.

It is our opinion that a quick high heat is to be desired; the less time the metal is exposed to a melting heat the smaller volatilization loss. A longer heat required to get a sufficiently high temperature for proper mixture before pouring will cause a higher loss than a short heat from 200 to 300 degrees F. in excess of the pouring temperature, which are about the results as obtained with the present equipment.

Another feature of the present equipment which should not be lost sight of, is the cost of repairing as compared to gas furnaces. The iron nozzles of the gas burners burn off and have to be replaced which means dismantling the furnace to replace them; also the brick linings are more expensive and difficult to repair. In the case of fuel oil, the only part of the furnace which

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT.

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is perishable is the fire brick nozzle which is lined with carborundum. This is easily replaced from the inside of the combustion chamber; while the lining of the furnace consists, with one exception, of 2 inch fire brick, and the furnace can be repaired in a very short time without removing any of the parts.

The only possible objection to any of said Rockwell furnaces, that I know of, is the unusual heat emanating from those in the Refinery melting room, where the temperature is very high and distressing to the men, but that is caused, probably, by local conditions, as the same objection cannot have any application to the furnaces in the Deposit melting room, and very little, if any, to the furnaces in the Ingot melting room.

I have hereinbefore stated how we overcome the excessive heat in the Deposit melting room by changing the top of the furnaces, etc., but I will add that, in that room, situated in the basement of the building, we have a splendid flue and plenty of ventilation; in the Ingot melting room, on the main floor of the building, we also have a fine flue, and the room being large with ventilation from two sides dissipates the heat to such an extent that it is not especially noticeable; but, in the Refinery melting room, which is very small, with two windows only and both on the same side, and just one story intervening between it and the roof, the flue is short, the draft comparatively weak and the furnace connections with it has so many angles that material changes should and no doubt will be made in the near future, by which we will remove the above and only objection existing at this time.

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MELTER AND REFINER'S DEPARTMENT.

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In conclusion, and after careful deliberation, I now state that our equipment is entirely satisfactory. Of course, it is not expected that the furnaces are perfection, or that we shall ever attain that degree in a melting furnace. There are times when there is trouble, but by maintaining a uniform pressure of air, a constant and steady flow of oil to the burners with the oil heated to a uniform temperature when it reaches the burners, the furnace men will have little trouble in getting the results desired for good clean work.

Respectfully submitted,

John Wilson
Melter and Refiner.

U. S. MINT SERVICE
 No. 67 100 200 - 2 x 100

MELTER AND REFINERS OF BULLION BALANCES.

Mint of the United States at Denver, Colorado
 Superintendent of the Mint by him during the month of April, 1906

GOLD.

Received	STANDARD OUNCES.			Delivered	STANDARD OUNCES.		
	Balance	Ingot	Bars		Ingot	Bars	Swage
April 1.							
Transferred to Gold Deposits	645	321	900				
Transferred to Silver Deposits	94	734	885				
Transferred to							
Exchanges, blanks, etc.	209	649	930				
	949	706	685	Balance	493	722	895
				April 30,	949	706	685

SILVER.

Received	STANDARD OUNCES.			Delivered	STANDARD OUNCES.		
	Balance	Ingot	Bars		Ingot	Bars	Swage
April 1.							
Transferred to Gold Deposits	76	364	33				
Transferred to Silver Deposits	5	212	17				
Transferred to							
Exchanges, blanks, etc.	16	506	30				
Transferred to	11	944	80				
	109	030	14	Balance	23	410	00
				April 30,	109	030	14

Superintendent.

May 1st 1906

James M. Smith

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MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver, May 1, 1906.

Mr. A. Frank M. Downer,

Supt. U. S. Mint, Denver, Colo.

Sir:-

Responding to your request of the 14th ult., I have the honor of presenting the following report on the melting furnace equipment furnished by the Lockwell Engineering Co. of New York for the Melter and Refiner's Department, United States Mint, Denver, Colorado.

The melting rooms are equipped as follows: The Refinery melting room with three furnaces to use No. 60 to No. 80 graphite crucibles; the Ingot melting room with eight furnaces of the same type and size; the Deposit melting room with three small furnaces of a different type, for crucibles from Nos. 14 to 30, and one large size for Nos. 60 to 80 crucibles.

The Refinery melting room is supplied with blast from a No. 3 Sturtevant Blower driven by a 7-1/2 H.P. Bullock motor, capacity of blower 650 cubic feet of air per minute at an average pressure at the burner of 11 ounces.

The Ingot melting room is supplied with air from a No. 5 Sturtevant Blower driven by a 15 H.P. Bullock motor, with an estimated capacity of 750 cubic feet of air per minute, with an average pressure at the burner of 11 ounces.

The Deposit melting room is supplied with air from a No. 4 Sturtevant Blower driven by a 10 H.P. Bullock motor, giving 700

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT.

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cubic feet of air per minute, with an average pressure of blast of 11 ounces.

It will be seen from the above that each melting room is independent of the others as to its source of air; however, the Ingot and Deposit melting rooms supply lines are "by passed" so that either fan will supply blast in case of break down.

A close investigation of the long line of pipe from the oil pumps in the basement shows the joints to be absolutely tight, and up to the present time there has been no leakage of oil into the building which would render a disagreeable odor.

The pumping system in the basement consists of two duplex steam pumps of a special design, for heating the oil by exhaust steam, thereby placing the oil at the burners heated to a temperature of 85 degrees F., which facilitates the complete combustion of the oil, thus reducing the amount of carbon deposited in the combustion chamber to a minimum. The pumps are connected to two storage tanks with a capacity of 10,000^{gallons} each, crude oil, so connected as to pump from either, and so that while using from one the other can be filled.

After using 2800 gallons of Florence, Colorado, crude oil, we tried the distillate for fuel purposes. The crude oil at times seemed to choke the burner nozzle so that it would not flow freely, and in the Ingot melting room on cold days it was necessary to frequently tap the oil supply pipe close to the nozzle to get up a sufficient heat to do our work. The distillate, however,

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Downer - 3

which we have since used, gives much better results, because it is a thin oil, flows freely, and gives a steady supply of fuel at the furnaces, which insures a more uniform heat and with less adjustment of the burners. We have no meter connections to determine the consumption of fuel, but on the 25th of April we made a careful test of furnace use and amount consumed, and on the 26th we repeated the test, and after careful computation it is our opinion that the No. 80 furnace consumes not to exceed five gallons of distillate per hour, and the No. 20 furnace (deposit melting room) not to exceed four gallons per hour.

The furnaces in the Ingot and Refinery melting rooms are constructed of steel plates and angle irons firmly bolted together, the only cast iron being the top plate; they are lined with the best grade of Colorado fire brick, and with the high heat obtained the lining lasts approximately two months.

The large furnace in the Deposit melting room was originally constructed the same as, and the small ones similar to, those described in the foregoing paragraph; but, in experimenting for the purpose of getting rid of the unusual heat that emanated from them, we took off the cast iron top, slides, etc., and re-covered each furnace with a heavy fire clay plate, cutting a hole in the center of same about two inches larger, in diameter, than the crucible to be used, placing a fire clay ring 4-1/2" high around the hole, and retaining the hood used on our old gas furnaces, which change has materially lessened the heat from the exterior

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Downer - 4

of the furnaces. We also reduced the size of the outlet from the furnace into the condensing flue about one-half, which shortened the time of making melts and apparently without endangering the life of the furnace lining, as the opening being so much smaller necessarily reduced the span of the arch over same and correspondingly reduced the strain on the arch, which is the weakest place in the lining.

The wear and tear on the crucible from the high heat (2400 to 2800 degrees F.) is not very great, due principally to the fact that the combustion chamber is to the right of the bottom of the pot, so that the force of the combustion is broken by the bricks, and the heat circulates around the crucible before going into the condensing flues.

At the present time we are getting from ten to fifteen melts out of each crucible; in the Refinery melting room to bring down a melt of fine gold (made from cathodes which must be fed into the furnace slowly from time to time) ready for dipping, requires about ninety minutes for 7200 ounces of metal; while a 6000 ounce gold anode melt (made from deposit bars) can be melted down in forty-five minutes. The time consumed in making melts in the Ingot melting room varies according to the material used; in using fine gold with the proper alloy, the time consumed in melting down, say, 6000 ounces to the dipping point, is approximately 75 minutes; in using about one-third of the same kind of charge and the balance clippings, the time consumed is about 90 minutes, and in a melt of

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Downer - 3

all clippings, the time consumed would be about one and three-quarters hours; said clippings are always quite hard, because the strips rolled from the ingots we are furnishing are never annealed. The results obtained in the Deposit melting room, due largely to the changes made in the furnaces, are better than in any other department; 1000^{ounce} melts are poured in from 15 to 18 minutes, and, generally speaking, the melts are made in about three-fifths the time formerly consumed.

The only part of the furnace, other than the lining, which is perishable, is the fire brick nozzle which is lined with carborundum, and when burned out it can be easily replaced from the inside of the combustion chamber; the lining of the furnace consists principally of 9 inch fire brick, and it can be repaired in a reasonable time without removing any of the parts.

The only objection to any of said Rockwell furnaces, that I know of, is the unusual heat emanating from those in the Refinery melting room, where the temperature is very high and distressing to the men, but that is caused, partly at least, by local conditions, as the same objection can have little, if any, application to the furnaces in the Deposit melting room, and not very much to the furnaces in the Ingot melting room.

I have hereinbefore stated how we reduced the excessive heat in the Deposit melting room by changing the furnaces, but I will add that, in that room, situated in the basement of the building, we have a splendid flue and plenty of ventilation; in the Ingot

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Downer - 8

Melting room, on the main floor of the building, we also have fine flues, and the room being large with ventilation from two sides, the heat is dissipated to such an extent that it is not especially noticeable at the furnaces, although it is quite warm in the visitor's gallery. But, in the Refinery melting room, which is very small, with two windows only, and both on the same side, and just one story intervening between it and the roof, the flue is short, the draft comparatively weak and the furnace connections with it have so many angles, that material changes should, and no doubt will be, made in the near future, by which we hope to better the conditions in that room.

In conclusion, and after careful consideration of the entire subject, I now state that our furnace equipment is quite satisfactory; but it is not claimed that the furnaces are perfection; there are times when we have trouble, but by taking due precautions, the furnace men will have little inconvenience in getting the results desired for good and expeditious work.

Respectfully submitted, .

Wm. H. Downer
Melter and Refiner.

Ms. A. 9. 2.

I will send you some more for half dollars
and quarters if there are as many.
I will also send you some for dimes, and
for cents. I will send you some for

and under piece one inch thick.

the first would be made for either
and I believe to be for that before coming
the volume.

Restituta
the war?

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver, May 2, 1906.

Hon. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I have the honor to recommend Alexander Webster for the position of helper in the Refinery at a salary of \$3.25 per day. I recommend that his appointment be made to take effect on the 8th inst.

Respectfully,

J. J. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver, May 3, 1906.

Gen. Frank M. Downer,
Superintendent, U. S. Mint,
Denver, Colo.

Sir:-

I have the honor to recommend Burt H. Taggart for the position of helper in the Refinery at a salary of \$3.25 per day. I suggest that his appointment be made immediately, to take effect upon his executing the oath of office.

Respectfully,

J. W. Milburn
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

May 3, 1906.

Hon. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

On the 8th day of last February, I had the honor of calling your attention to the necessity of providing for the Melter and Refiner's office a light safe in which to keep record books, files, etc. Under date of February 12th, the supervising architect communicated with you regarding said safe with an inclosure numbered 7082, and the same was referred to this department, and fully answered on February 17th, since which time we have not had any information regarding the matter. Will you kindly advise us as to the present status of the case?

Respectfully,

J. C. Milson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

May 5, 1906.

Hon. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of recommending Samuel R. Whitaker for the position of helper in the Refinery at a salary of \$3.25 per day. I suggest that his appointment be made to take effect upon the 7th inst.

Respectfully,

Samuel R. Whitaker
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Denver, May 8, 1908.

Mr. Wm. M. Daidis,
318 W. First Ave.,
City.

Sir:-

I notice that your name is on the list of eligibles for the position of helper in the mint service; and while I do not know when your services may be needed, if at all, yet, if convenient, I would like to have you drop in to my office on Monday next that I may discuss with you your qualifications for said position.

Respectfully,

J. J. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

May 19, 1908.

Hon. Frank H. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of requesting bonds in the sum of \$5,000
each for the following named employes in this department:
Denver Chaffee, assistant melter; Burt H. Taggart, refinery
helper; Sam R. Whitaker, refinery helper.

Respectfully,

John Wilson
Melter and Refiner.

Print of the United States at 67 Avenue C, New York, 60th St.

Gold and Silver Bullion Balances in the Melter and Refiners hands and Receipts from and Deliveries to the

Superintendent of the Mint by him during the absence of Mr. May, 1876.

GOLD.

STANDARD ORDER		STANDARD ORDER	
19-06		19-06	
250	752	648	045
1071	600		
207	971		
	400		
1810	204408	1116	244105
		1810	244495

Delivered

Ingots
 Bars, Fine
 Bars, Standard
 Bars, Unpacked
 Bars
 Sweeps

Balance May 31

19-06

二、世界

STANDARD RECORDS.	
Delivered	
Lingula	85 620 14
Born Free	72 492 28
Born, Standard	
Born, Imported	
Born	6 090 80
Serpa	
Notes	
May 81,	
147 022 70	
144 141 28	

Frank W. Johnson

Thyroid and Metabolism

June 1896

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

June 12, 1906.

Hon. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of calling your attention to the services of Jacob M. Boyle, Foreman of the Refinery Melting room; since his transfer to this institution, he has been a model employe, careful, competent, and sincerely desirous of accomplishing the greatest possible amount of work. The Refinery melting room, as you know, has been a difficult place to work in, on account of the excessive heat, and the large amount of melting necessary; however, Mr. Boyle did not falter for an instant, but unostentatiously pursuing the even tenor of his way accomplished what had appeared to be almost impossible in the way of getting through with the immense amount of work that was necessary.

In consideration of the foregoing, and the additional fact that no other person in the Melter and Refiner's department who is in charge of an operating room receives less than the amount hereinafter designated, I most earnestly recommend that his compensation be fixed at five dollars per day from and after the first day of July next; being an increase of 50 cents per day.

Very respectfully,

John W. Williams
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

June 12, 1906.

Mr. Jos. W. Wilson,
Melter and Refiner,
U. S. Mint, Denver, Colo.

Sir:-

In view of the large amount of work done in the Refinery, and the fact that the foreman is very often required to be out of the room, both receiving and delivering gold, I recommend that the Refinery melting room be separated from the Refinery proper, and be placed in charge of Mr. J. R. Boyle, at a compensation of \$5.00 per day, his force to consist of two assistant melters and a helper.

I further recommend that Mr. H. D. Bartlett be made assistant foreman of the Refinery at a compensation of \$4.50 per day. In view of this recommendation, it will be necessary to detail another man on the gold cells to assist Bartlett. In order that the Refinery may be kept clean, the sweepings promptly burnt up, sweats made, and that the general appearance of the Refinery will indicate careful and clean work, the foregoing recommendations are necessary in my opinion.

Respectfully,



Assistant Melter and Refiner.

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MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

June 13, 1906.

Hon. Frank M. Downer,
Superintendent,

U. S. Mint, Denver, Colo.

Sir:-

Under date of April 13, 1906, I had the honor of calling your attention to the necessity of enlarging the Refinery melting room. After two months delay on the part of the Colner, I now have before me his answer to said communication; and in reply thereto, I have the honor of presenting the following statement:

I admit^{that} the proximity of the melting room to the adjusting room adds somewhat to the heat in the latter, but that it "has proven deleterious to the health of the force generally", I doubt; in fact, I believe that that statement is entirely sophistical, and a careful inspection of the adjusting room force will certainly sustain my belief, as they are a remarkably fine and healthy looking lot of ladies; and it appears to me almost slanderous to suggest anything to the contrary.

As to the matter of prostrations from the "excessive heat", I have very little information, but such as I have I desire to record, to wit: Sometime after my first communication with reference to this matter, I was coming out of the Refinery and met the Colner in the hall outside of the Refinery door, and he handed me a thermometer, saying in substance, "Here is Firth's thermometer; I found

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

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it hanging in the adjusting room. He hadn't ought to do that." I fully agreed with him, and stated that such action was contrary to my wishes and should not occur again. If you remember, about that time you came up and engaged in conversation with the Coiner and myself in the hall, and we noticed one of the ladies from the adjusting room sitting by the open window at the end of the hall, and the Coiner remarked that that was the third prostration that day from the heat. Afterwards, in discussing the matter with Mr. Wirth, he stated that the thermometer was taken into the adjusting room with the consent of the forewoman and hung about six feet from the floor over the seat of the adjuster that sat closest to the so-called hot partition; that he went in and looked at it about 30 minutes later and that it registered 88 degrees F. As to the statement of the Coiner that "said partition of the room was a grievous error," I beg to submit that the grievous error consisted in his opposition to the partition running all the way across, as that would have enabled us to so adjust our ventilation that the melting room heat would have been greatly reduced, and, of course, it would have been correspondingly cooler in the adjusting room.

As to the statement that said partition is "so intensely hot as to admit of one's hand being only momentarily possible to be laid thereon," and the watchmen's alleged statement that "this high condition continued throughout the night," I can only say that I have at no time found said partition as hot as said allegation; and as to the watchmen's statements, it is impossible for them to

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MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Downer - 3

be literally true, and further I cannot say as I have not discussed the matter with them.

As to the statement regarding "the insufficiency of the air space with 80 people now in the room," note this: the office that I am doing this writing in (the office of the Melter and Refiner) has 18 per cent less cubic feet of air space per capita than the adjusting room with its full force present, and only a partition separates this office from the Ingot melting room; and, further, after we extend our Refinery melting room partition to the east wall of the adjusting room, the adjusting room will still have a greater air space per capita than this office.

I agree fully with the Coiner that "we should all be equally solicitous for the health and ordinary comfort of the ladies employed here,"--but I would also include the men in the statement; and it would appear that this is only fair when I state that the heat in the refinery melting room (taken with the same thermometer hereinbefore referred to) registers constantly from 120 to 160 degrees F.--in fact it registers the former at the present moment, and the furnaces have been closed down for at least an hour. And please remember that the limit of our refinery capacity is the limit set by the Refinery melting room; and all the overtime in connection with the Refinery during our rush last month was in said melting room.

As to the Coiner's request "that the partition be at once removed and the adjusting room restored to its original dimensions,"

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Downer - 4

and his statement that to do so "will work no hardship upon the Melter and Refiner's department, which can comfortably do the refinery melting in the large and well ventilated melting room, with a surplus of furnaces, as originally intended," I must confess I am very much surprised--not at the request (for I have known the Coiner for many years)--but as to the said statement that follows it; because it is the first opinion I have had from the Coiner as to how to comfortably do the refinery melting "as originally intended." The superintendent of machinery, who was in charge of the equipment of this institution, when interrogated by me as to a Refinery melting room, stated that it was the intention to put it in the east end of the present main refinery room, but the equipment of said room absolutely prevented that action, and it had to be placed elsewhere. Later, when my assistant arrived, he informed me to the same effect; and that statement of the Coiner's--in substance, that it was originally intended to do the refinery melting in the Ingot melting room--is the first intimation of the kind that I have ever had from any source. At settlement, the regulations require a full and accurate statement from the Melter and Refiner of the business of his department during the year; and if the ingot and refinery melting should be attempted in the same room, and necessarily through the same flues, it would of course cause such a commingling of the melting room sweeps and as well the flue and condenser sweeps, as to render it utterly impossible to differentiate between them, thus rendering absolutely worthless any efforts

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MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Downer - 5

to determine accurately the work of the respective departments. Certainly, even if this were permissible, it is far from being advisable, as it would cause endless trouble and dissension between the two departments over the question of loss and gain in their respective operations. The Coiner's reference to surplus furnaces is so wholly uncalled for as to be almost amusing: We have eight furnaces in the Ingot melting room--four on each side--and we use one side for gold and the other for silver and sweats; and considering relinings and repairs of the furnaces, it would certainly be far from economical to attempt to operate the ingot melting room with a less number than we now have. So the question of doing the refinery melting in that room is entirely out of consideration, and it is only necessary therefore to refer very briefly to the Coiner's statement that it is just as convenient for us to take our gold down to the melting room as it is for him to take his up to the whitening and adjusting rooms. Now as to that: It would probably be better for the Coiner's department if all his operations were on the same floor of the building, but it is unfair to say it is just as convenient for us to move our gold up and down as for him, because his gold consists exclusively of metallic blanks carried in small and convenient covered boxes, while our refinery product is in many forms, such as bars, tops, slimes (dry powder form), cathodes, etc., and all of it, except the bars, must be conveyed in open porcelain or earthenware filters, which are cumbersome, heavy, and very brittle, and the risk of transportation by

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Downer - 8

elevators and trucks over rough places (particularly in and out of the elevators) would be very great, certainly much greater than I would willingly assume.

Presuming that I have covered briefly the Coiner's answer to my former communication, I now desire to present the remedy; and that is the granting of my request of April 13th. And, speaking of it as a remedy, I know you will pardon a few more lines by way of explanation. If a new partition is run all the way across the adjusting room, leaving an open air space of a few inches between it and the one now in use, it will almost preclude any heat from passing into the adjusting room from the furnaces; and if it should be arranged to use a fan in connection with said air space it is my opinion that the remedy will be perfect for the conditions complained of by the Coiner.

In conclusion, I fully agree with the Coiner that this matter is of pressing importance, and I trust the new partition may be immediately erected, so that when we resume operations after settlement, it will be under conditions much more favorable and satisfactory, both ^{to} the Coiner and myself.

Very respectfully,

J. C. McFarlane
Melter and Refiner.

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MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

June 15, 1906,

Hon. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I return herewith "Bill of Lading" So. Pacific Co. to Clendenin Bros., Baltimore for ten (10) casks copper, shippers' weight 11,370 lbs, consignee U. S. Mint, Denver, Colo. Said casks were received on the 12th inst., and when the said bill of lading came to this department it was marked "Heads out of three (3) barrels when delivered"; and upon investigation I found the gross weight to be 8585 lbs., and the net weight of copper 8648 lbs., being a shortage of 1352 lbs. I therefore also return herewith for correction the bill in triplicate, of James Clendenin for \$2100.00 for payment of said copper.

Respectfully,

Joseph Wilson
Melter and Refiner.

U.S. MAR. SERVICE
Form No. 210.
EN FOR 10-60-111-1

MELTERS AND REFINERS OF BULLION BALANCES.

Print of the United States at

Brown, O. L.

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Disbursements to the Superintendent of the Mint by him during the month of August, 1905

GOLD.

[illegible]

SILVER:

[illegible]

SECRET

2. *Polysiphonia* *serotina* (L.) Dawson

June 30 1897

Stimula

Haller and Reisman

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT

July 2, 1906.

GOLD ACCOUNT.

The Melter and Refiner received during the fiscal year ending June 30th, 1906, gold bullion, standard ounces, as follows:

Deposits	2,113,736.341	
Clippings	<u>368,868.140</u>	2,568,494.481
He delivered prior to settlement in ingots		<u>1,575,260.226</u>
To Balance		1,107,168.395

He delivered in settlement:

Crude gold deposits	1,025,865.480	
Refinery Settlement		
gold bars	72,972.625	
Experimental bars	3,549.088	
Refinery Settlement		
silver bars	4,568.455	
Refinery Settlement		
base bars	225.976	
Fine Gold	15.351	
Sweeps (290 sacks)	<u>132.047</u>	<u>1,107,168.395</u>
Excess		104.481

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

July 2, 1906.

SILVER ACCOUNT.

The Melter and Refiner received during the fiscal year ending June 30th, 1906, silver bullion, standard ounces, as follows:

Contained in Gold Deposits	138,878.77	
Shipings	104,813.68	
Transfer from Philadelphia		
mint	11,232.66	
Uncurrent coin	<u>142,703.82</u>	392,828.00
Re delivered prior to settlement in ingots		<u>247,617.10</u>
To Balance		145,211.70

Re delivered in settlement:

Contained in gold deposit

bars 116,792.93

refinery settlement gold

bars 8,898.73

experimental bars 787.94

refinery settlement silver

bars 27,855.08

shipings 900.10 147,617.10

Balance 2,411.80

MELTERS AND REFINERS OF BULLION BALANCES.

Minist of the United States at

Myrica, Pelt.

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the ~~month of~~ year 1901.

GOLD:

STANDARD OUNCES.				STANDARD OUNCES.				
Received				Delivered				
Balance	1906	116	264	153	Ingots	1906	107	214
Contained in Gold Deposits		86	408	153	Bars, Fine		107	214
Contained in Silver Deposits					Bars, Standard			
Contained in					Bars, Tinted			
Clippings, blanks, etc.		68	251	920	Bars			
<i>Added out in place</i>			154	461	Sweepings			
					Balance	1906	107	214
		1266	282	442			107	214

5174 R.

STANDARD OUNCE		STANDARD OUNCE	
Received	1906	Delivered	1906
Bullion	147.256 72	Ingots	146.704 49
Compared to Gold Deposits	2.327 05	Bars, Fine	156.241 22
Counted to Silver Deposits	2.369 02	Bars, Standard	
Counted in		Bars, Ungraded	
Wellsbach, Blauke, etc.		Bars	
Settlement due plus		Bullion	

Suaveolentia.

Wolfgang Iser

THE MINT OF THE UNITED STATES AT DENVER

OFFICE OF THE MELTER & REFINER,

July 6, 1906.

Hon. Frank M. Downer,
Supt. U. S. Mint, Denver.

Sir:-

I have the honor to report that I have carefully considered the bids on graphite supplies for the current fiscal year and find as follows:

That there are only three bidders; that the Denver Fire Clay Co. is the lowest bidder on 8 articles out of 14; that the Taunton Crucible Co. is the lowest bidder on 3 articles out of 14; that The Robert J. Taylor, Incorporated, is the lowest bidder on 2 articles out of 14; that on one article- No. 2 dipping cups- the latter is the highest bidder, the other two being the same; that the total of each bid, based upon the estimates as specified for the year are:

The Denver Fire Clay Co.	\$3191.25
The Taunton Crucible Co.	3461.25
The Robert J. Taylor, Incorp.	3566.00

I attach hereto a tabulation of said bids showing in full detail the foregoing facts;

The proposal of the Taunton Crucible Co. contains a statement as follows: 'as all the graphite articles wanted are of Dixon's Specials, it is impossible to submit samples, and this proposal must be accepted in whole not in part, if accepted at all. Bulk of shipment to be in usual car lot shipments with due notice'.

The fact is that the name 'Dixon' was entirely eliminated from the supplemental call for bids submitted to the bidders,

-2-

and the 'specials' required were specified in detail by blue prints; and the Fire Clay Co. did not make any supplemental bid but allowed its original bid to stand as its final proposal in the matter; and neither of the new bidders have submitted any samples whatever.

In view of the fact that The Taunton Crucible Co. will not accept a contract for anything less than the whole, and that as a whole its bid is \$270.00 more than the Denver Fire Clay Co. it seems unnecessary to consider its bid further. As to the Robert J. Taylor, Incorporated, it is below the Denver Fire Clay Co. on only 4 articles out of the 14, and in the aggregate its bid is \$374.75 greater than the proposal of the Fire Clay Co.- it therefore seems to affirmatively appear that the lowest and best bid is that of the Denver Fire Clay Co.- and in view of the further fact that we know the quality of its graphite goods to be first class, while no samples of any others have been submitted for our inspection as required by the call, I recommend that the proposal of said The Denver Fire Clay Co. be accepted and that it be required to enter into contract and bond accordingly.

As it is necessary for us to procure many of these goods as soon as possible, I earnestly recommend that action be had immediately.

Respectfully submitted,

Melter & Refiner.

PROPOSALS TO FURNISH GRAPHITE GOODS.

Article No.	as Desired Description	Denver Fire Clay Co.		Taunton Crucible Co.		Robt. J. Taylor Incorporated	
		Price each	Amount	Price each	Amount	Price each	amount
300	Crucibles						
50	Mint Special	4.60	1380.00	4.50	1350.00	5.25	1575.00
400	Crucibles No.30	2.10	105.00	1.75	87.50	1.95	97.50
	" No.20						
	(S.E.)	1.50	600.00	1.20	480.00	1.30	520.00
400	" No.14	.84	336.00	.95	380.00	.91	364.00
20	Crucible covers						
	No.90	1.57½	31.50	1.50	30.00	1.35	27.00
100	Crucible covers						
	No. 70 Spc.	1.20	120.00	1.50	150.00	1.05	105.00
125	Crucible						
	rings No.4"	1.00	125.00	2.25	281.25	1.05	131.25
75	Crucible						
	rings 2"	.70	52.50	1.75	131.25	1.05	78.75
50	Special gold						
	stirrers	1.50	75.00	3.00	150.00	1.75	87.50
500	14½" " "	.45	22.50	.60	30.00	.75	37.50
400	8½" " "	.35	140.00	.40	160.00	.75	300.00
125	Dipping cups #2	.50	62.50	.50	62.50	.60	75.00
250	" " 3	.50	125.00	.60	150.00	.60	150.00
25	" " 5	.65	16.25	.75	18.75	.70	17.50
			3191.25		3461.25		3566.00

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

July 10, 1906.

Hon. Frank M. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of suggesting that, before presenting for your consideration the question of increasing the equipment of the Refinery Melting Room, I would like to obtain the size of the new equipment as well as the cost, so that we may intelligently consider the subject from the standpoint of available space as well as available means to purchase. To that end, I respectfully recommend that propositions be obtained for installing complete, fully tested, and ready for use, the following equipment:

One Reverberatory cupelling oil furnace for melting and refining copper,--an iron shell with fire brick side lining with bottom of magnesia brick, and capacity of 1,000 lbs. of copper.

Also, one Rockwell oil furnace, No. 2921, same as recently installed by the Rockwell Engineering Co. in said melting room.

Very respectfully,

James Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

July 8, 1906.

Gold Account.

The Melter and Refiner received during the fiscal year ending June 30th, 1906, gold bullion, standard ounces, as follows:

Deposits	2,113,736.341	
Clippings	<u>552,438.146</u>	2,666,174.487
He delivered prior to settlement in ingots		<u>1,375,257.630</u>
To Balance		1,307,167.681

He delivered in settlement:

Crude gold deposits	1,025,304.480	
Refinery Settlement gold bars	72,972.625	
Experimental bars	3,549.088	
Refinery Settlement silver bars	4,568.455	
Refinery Settlement base bars	225.290	
Fine Gold	15.351	
Sweeps (298 sacks)	<u>132,047</u>	1,107,381.289

Excess

100.000

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

July 2, 1906.

Silver Account.

The Melter and Refiner received during the fiscal year ending June 30th, 1906, silver bullion, standard ounces, as follows:

Obtained in Gold deposits	133,978.77	
Oliver's	104,913.55	
Transfer from Philadelphia mint	11,232.66	
Unbrought coin	<u>142,703.82</u>	392,828.80
as delivered prior to settlement in ingots		<u>247,627.10</u>
To Balance		145,201.70

Unsettled in settlement:

Obtained in gold deposit bars	115,792.80	
Refinery settlement gold bars	2,298.73	
Unbrought bars	808.98	
Refinery settlement silver bars	27,855.02	
Unbrought	<u>806.23</u>	147,679.72
Excess		2,420.08

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

July 14, 1906.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of transmitting herewith the annual report of the operations of the department of the Melter and Refiner of the United States Mint at Denver, Colorado, for the fiscal year ended June 30, 1906.

Very respectfully,

J. H. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER.
MELTER AND REFINER'S DEPARTMENT.

Joseph W. Milson, Melter and Refiner.

The Melter and Refiner received from the Superintendent during the fiscal year ended June 30th, 1906:

	Standard ounces	Standard ounces
Bullion containing gold	:	2,682,424.481
Returned in ingots prior to settlement	1,575,280.820	:
Returned in bars at settlement	1,107,322.322	2,682,589.942
Surplus in gold recovered		165.461
Bullion containing silver	:	392,828.80
Returned in ingots prior to settlement	247,627.10	:
Returned in bars at settlement	147,621.76	395,248.86
Surplus in silver recovered		2,420.06

The surplus, as well as the additional amount necessary to cover actual operating losses, was recovered from unreported fractions of assay, from fractional gains in weight of gold deposits, and from the difference between standard and actual fineness of ingots delivered.

The following melts were made:

Metal	Anodes	Deposits	Mint bars	Ingots	Special	Totals
Gold	198	4512	151	370	27	5158
Silver	8	54	1	25	12	100
	206	4566	152	395	39	5308

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

-2-

During the year two gold ingot melts were condemned because they were not homogeneous. No silver ingot melts were condemned.

298 sacks of sweeps were gathered during the year, containing by assay 132.047 standard ounces of gold and 866.25 standard ounces of silver.

Refinery operations were as follows:

	Gold Standard ounces	:	Silver Standard ounces
Delivered to the Refinery bullion containing	1,085,732.899	:	28,480.94
Returned in fine bars	1,007,810.231	:	2,666.44
Returned in settlement bars	77,900.057	:	27,501.91
Returned in sweeps	87.163	:	772.95
Surplus recovered in Refinery	64.552	:	2,460.36

The average fineness of the fine gold returned from the Refinery during the year was 0.99985; and, in the last operating month, May, there were produced 381,534.34 ounces of fine gold of an average fineness of 0.9999 plus.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

-3-

Receipts and Expenditures of the Refinery:

Receipts: Charges collected for parting	\$16,841.12	
Surplus bullion recovered	<u>2,877.18</u>	\$19,818.30
Expenditures: Wages	\$6,702.58	
Supplies	2,140.64	
Electricity	1,454.27	
Acids	787.76	
Fuel oil	441.98	
Repairs	<u>244.28</u>	11,751.49
Excess of receipts over expenditures in Refinery		<u>\$7,766.81</u>

Deducting the Refinery surplus from the expenses of operating the Refinery and we have a net cost to the government of 0.8255 of a cent per standard ounce of gold produced in the Refinery.

A number of new ideas have been introduced in connection with the electrolytic process of gold refining:

We now make the gold chloride to replenish the electrolyte in the gold cells, without the assistance of nitric acid, and in a very economical and expeditious manner.

We use a new anode mould which reduces the amount of scrap produced in the gold cells about one-half.

By the use of a special form of hard rubber baskets, we now treat our gold cell tops and alimes, as well as the gold anodes

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

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from the silver cells, direct, without any melting.

We have several other experiments of much importance under consideration, but they have not advanced to the stage justifying a direct reference to them.

The amount of hydrochloric acid used for each thousand ounces of gold refined was 28.8 pounds.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

July 20, 1906.

Mr. W. B. Fitcham,

Assistant Melter and Refiner,

U. S. Mint at Denver,

3218 Summer St., Philadelphia.

Dear Sir:-

With reference to the reverberatory furnace for melting refinery copper, I communicated with the superintendent on the 10th inst. requesting that he secure propositions from the Rockwell Engineering Co. so as to determine cost of same before placing the order, as there is a question as to having sufficient funds to purchase at present. He forwarded my communication to the Rockwell Engineering Co. and in return they ask for more details in regard to the furnace, such as size of melting chamber, working openings, and such other facts as may be pertinent. I would thank you to give me these details at your earliest convenience.

Everything is going smoothly; our settlement was entirely satisfactory to the commission, and the results of our refinery were astonishing. Braddock and Hassan spent several days here, leaving on Wednesday evening for Washington. They expressed themselves as being very agreeably surprised at the results of our preliminary operations.

Trusting you are having a delightful time, I remain,

Very truly yours,

Joe Arnoldson
Melter and Refiner.

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MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

July 24, 1906.

Robert Clark, Esq.,
City.

Dear Sir:-

With reference to the quality of gold used in making our ingots, permit me to say:

On February 7, 1906, we received our first melt of fine gold from the Refinery, but, owing to the fact that we had to use .995 gold to make the cathodes, having nothing better, said first melt was only .9992 fine.

Melt No. 2 was .99923 fine;

"	"	3	"	.99931	"
"	"	4	"	.99937	"
"	"	5	"	.99941	"
"	"	6	"	.99979	" ;

and it gradually increased in fineness until Melt No. 30, which had been given a little extra care, ran .99999 plus; and thereafter we made no extra efforts to produce specially fine gold, but rather expended our energies in increasing the output. However, to show that our product continued to be pretty good, I will refer to the result at different times up to our closing down for settlement:

Melts Nos. 35 to 42, inclusive, were all .9999 or better; melts 55 to 100 were equally good; and 98, 93, and 92 were .99999.

The average fineness of all our product for the year was

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Clark - 2

.99985, and for the last month, May, during which we produced 361,834.34 ounces, the average was .9999 plus.

Using exclusively such fine gold, together with pure electrolytic copper for alloy, we secure all the time very ductile ingots; in fact, they have been so perfect that not one has ever been returned unused. Of course this condition has eliminated all strip annealing in the coining department, and has probably effected some saving in other ways.

Sincerely yours,

J. C. Milson
Melter and Refiner.

MELTERS AND REFINERS OF BULLION BALANCES.

Printed at the United States at

Pinus. C. formosa.

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Deliveries to the Superintendent of the Mint by him during the month of July, 1906.

GOLD.

[illegible]

SILVER

STANDARD OUNCES.			STANDARD OUNCE.		
Received			Delivered		
Balance	100	100	Ingots	6	304
Contained in Gold Deposits	6	795	Bars, Fine		75
Contained in Silver Deposits	44	44	Bars, Standard		
Contained in	37	00	Bars, Unparted		
Clippings, blanks, etc.	6	00	Bars		
	100	100	Sweep		
	100	100	Balance	100	100
	100	100		100	100

SECRET

190

Superintendent.

Moller and Refsum

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MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

August 3, 1904.

Mr. Robert L. Whitehead,
3218 Summer St.,
Philadelphia, Pa.

Dear Sir:-

This a.m. I received your communication of the 29th ult. containing your resignation as Assistant Melter and Refiner of the United States Mint at Denver, Colorado, together with the details of reverberatory furnace, as I requested a short time ago. For the latter I thank you; as to the former, I am truly sorry to lose your valuable advice and assistance in our work. Your unqualified success in perfecting the equipment, as well as the operations of our department, especially the electrolytic refinery, entitles you to our commendation and earnest thanks, and the same are herewith tendered. I also thank you for the proffer of your assistance at any time, and I sincerely hope that your future may be a happy and prosperous one.

Please convey my kindest regards to Mrs. Whitehead.

Your resignation is reluctantly accepted, to take effect on the 13th inst.

Sincerely yours,

Robert L. Whitehead
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

August 3, 1908.

Hon. Frank H. Downer,
Superintendent U. S. Mint,
Denver, Colo.

Sir:-

I this day received a communication, which I attach hereto, from my Assistant, Mr. Robert L. Whitehead, tendering his resignation as Assistant Melter and Refiner of this mint, to take effect on the 13th inst. I have notified Mr. Whitehead of my acceptance of his resignation; and I now have the honor of appointing Mr. Josiah M. Hetrich as Assistant Melter and Refiner of the United States Mint at Denver, Colorado, to take effect on the 13th inst.

Respectfully,

Josiah M. Hetrich
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

August 10th, 1906.

Honorable Frank M. Downer,
Superintendent, U.S. Mint,
Denver, Colorado.

Sir:-

I have the honor of calling to your attention the fact that, owing to the appointment of Mr. Josiah M. Hetrich as Assistant Melter & Refiner, to take effect on the 16th instant, it will be necessary for me to procure a suitable person to do the work that he has heretofore been doing in the Make-Up room.

Mr. John F. Pughe has been assisting Mr. Hetrich ever since the beginning of our coinage operations, and has become familiar with the work in that department, and besides he is a good careful calculator and always very willing to assist in any kind of work. These things command him to me very highly, and I am earnestly desirous of having him do the work heretofore performed by Mr. Hetrich. I therefore recommend that his compensation be increased to four dollars and fifty cents (\$4.50) per day, to take effect on the 16th instant.

Very respectfully,

Josiah M. Hetrich
Melter & Refiner.

MINT OF THE UNITED STATES AT DENVER.
MELTER AND REFINER'S DEPARTMENT

Gen. Frank M. Rowner,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

According to the request of The Rockwell Engineering Co., dated July 18, 1906, for further information regarding two reverberatory and one cupelling furnace and their installation, which was referred to this department, I have the honor to say:

The proposition of the said Rockwell Engineering Co. is based upon furnishing the necessary material and draughts for the same at the U. S. Mint, Denver, Colo., and we can attend to the same ourselves.

As to the reverberatory furnace, the following details are approximate; the wide experience of said company will be able to ascertain herefrom what we want as well as to correct any minor inaccuracies:

Length over all, 8 feet; width over all, 3 feet; lower openings, 2 feet by 4 feet; height of combustion end of furnace, 2 feet, 6 inches; height of flue end of furnace, 3 feet; that the roof has a pitch down of 6 inches from the combustion chamber to the flue leading to the dust chamber. Charging door, 12 inches square, placed in centre of front of furnace to be water-jacketed. Mounted on cast iron legs, sufficient to bring the bottom of the charging door 3 feet from floor.

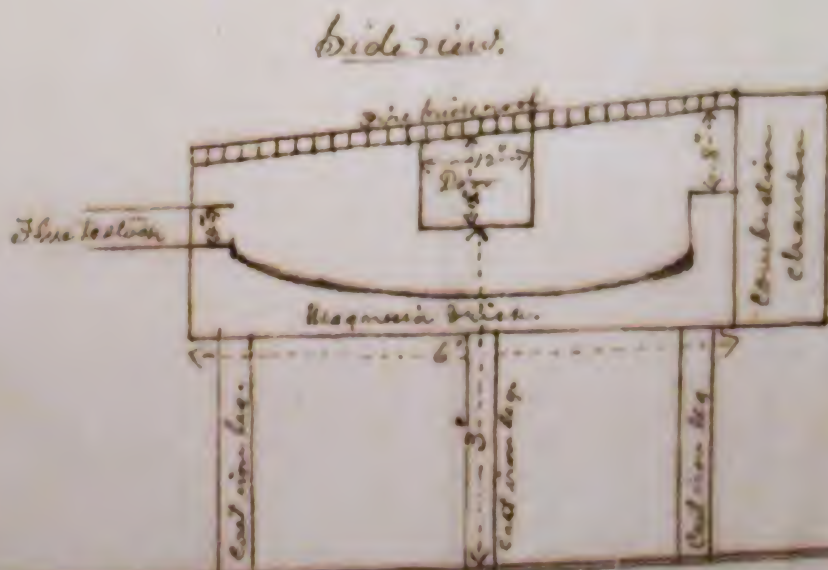
The furnace has only one door and should have the opening

MINT OF THE UNITED STATES AT DENVER.

MELTER AND REFINER'S DEPARTMENT.

The floor should be built with the bricks on edge and
 the top surface so that the bottom slopes to the centre of the fur-
 nace, forming the form of an inverted arch.

The following rough sketch may be of some assistance:



The size of the combustion
 chamber, for 2 burners,
 to be determined by the
 Rossmore Engineering Works
 and accompanying their bid.

At low level.

Basing for water-jacketing not shown.

Respectfully,

Joel Milson
 Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

August 15, 1906.

Hon. Frank M. Bowser,
Superintendent, U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of calling your attention to certain disclosures incident to our settlement work:

On May 3, 1906, you delivered to our department 1741 deposit bars, containing 983,289.199 standard ounces of gold, in Vault F. During our operations in May, we extracted from said vault 387 bars, taking as a rule the finest, including a large number of American Smelting & Refining Company's deposits. In checking over this vault for settlement purposes, we weighed each bar and checked same with the book charge against us, whereby we found that 373 A. S. & R. Co. bars, of dates between July 1, 1905, and February 1, 1906, actually had lost in weight the enormous amount of seventeen and seventy-seven hundredths ounces (17.77 ozs.), being an average of a fraction over .068 of an ounce to each bar.

Prior to the receipt of the contents of Vault F, we had discovered that said A. S. & R. Co. bars were running short on weight, and on or about February 1st, called your attention to the fact, and at which time there was had a tacit understanding that the settlement allowance of five hundredths to each bar should be increased to seven hundredths. I presume that that was done, because I find that, on the bars of dates between said February 1st

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Denver - 2

and March 7, seventy-five in number, the loss had decreased to 1.07 ounces, or approximately .015 to the bar. The loss on individual bars of the first lot reached, in one instance, .37 of an ounce, and in several instances, .23 of an ounce, while the greatest loss on the February--March lot was on two bars that each lost .16 of an ounce, and the total loss in the latter lot was included in 21 bars out of the 75.

Respectfully submitted.

John H. Neilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

August 16, 1906.

Hon. Frank W. Downer,
Superintendent, U. S. Mint,
Denver, Colo.

Sir:-

I have the honor to report that in the shipment of earthenware goods just received from Frederick Bortuch & Co., 207 Temple Court Building, New York, I find two of the "ground in 3/4" cocks" for vessel Fig. 148 (33 gals. capacity) broken. Under their requirements, this notice should be given within 9 days of receipt of shipment, and I therefore recommend that they be informed of said breakage immediately.

Respectfully,

J. W. Milson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

August 22, 1908.

Hon. Frank M. Bowner,
Superintendent, U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of responding to the communication of Tiffany & Co., dated the 18th inst., and referred to this department for answer, as follows:

All our parting and refining of both gold and silver is by the electrolytic process, using, however, in our work, some modifications of the generally known systems. In our gold cells the electrolyte is chloride of gold (made by an entirely new process), and in the silver cells the electrolyte is nitrate of silver.

The question of success can be easily disposed of by a brief statement of facts regarding our work:

We began operating our Refinery in February, 1906, and closed it down for settlement purposes about June 1st, and during that period we produced over 500,000 ounces of gold of an average fineness of 0.99985; and, during the last operating month, May, we produced 331,634.34 ounces of gold of an average fineness of 0.999 plus; and quite frequently the fine gold melts would check with the proof gold, in which event the assayer would report 0.9999 plus.

The cost of producing said fine gold was approximately one cent per ounce. We have been equally successful in our silver operations, although we have had the silver cells in commission only a short

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

August 22, 1906.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver, Colo.

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I have the honor of responding to the communication of Tiffany & Co., dated the 18th inst., and referred to this department for answer, as follows:

All our parting and refining of both gold and silver is by the electrolytic process, using, however, in our work, some modifications of the generally known systems. In our gold cells the electrolyte is chloride of gold (made by an entirely new process), and in the silver cells the electrolyte is nitrate of silver.

The question of success can be easily disposed of by a brief statement of facts regarding our work:

We began operating our Refinery in February, 1906, and closed it down for settlement purposes about June 1st, and during that period we produced over 900,000 ounces of gold of an average fineness of 0.99985; and, during the last operating month, May, we produced 381,634.34 ounces of gold of an average fineness of 0.999 plus; and quite frequently the fine gold melts would check with the proof gold, in which event the assayer would report 0.99990 plus.

The cost of producing said fine gold was approximately 0.01 cent per ounce. We have been equally successful in our silver operations, although we have had the silver cells in commission only a short

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

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time, owing to the fact that we were expending all our energies on perfecting our equipment for the production of gold for coinage purposes.

It is our opinion that there is no known system of parting and refining of gold or silver that ^{can} compete with the system we use, either in minimum of cost or maximum of fineness.

With your permission, the accredited representative of said company would be permitted to witness our operations and discuss our methods.

Respectfully yours,

Joe. W. Milson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

August 24, 1905.

Hon. John Q. McDonald,
Manager Union Plant,
Florence, Colo.

Dear Sir:-

Your shipment of the 20th inst. being your Nos. 733 and 734, which weighed, in my presence at your plant, 974.88 and 788.27, respectively, arrived here on the morning of the 21st and were weighed under my personal supervision, and the weights were 974.80 and 788.25, showing a moisture loss between mill and mint of .08 and .02, making a total of ten-hundredths (.10) of an ounce. In melting, No. 733 showed considerable slag which was eliminated in the melting process, making a loss of .50 of an ounce. No. 734 was a smaller and cleaner bar, and the melting loss was only .24 of an ounce.

As to the matter of your loss during the past five years, I am giving the matter most careful consideration, and will probably be the latter part of next month before I can report fully, as I desire to check all of your bars carried over from last year, of which we have quite a number on hand; and in the meantime I would appreciate it very much if you would procure and mail me an itemized account of your assays for the last four or five months--that is a statement of the fineness shown by each (top and bottom) assay on every bar for the said period, as this may assist in working the matter out.

Very respectfully,

John Q. McDonald
Melter and Refiner.

U. S. MINT SERVICE
Form No. 319.
Feb. 26-50-501-4 1 1066

WEIGHTS AND REFINERS OF BULLION BALANCES.

Print of the United States at D. E. M. V. & B.

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Deliveries to the Superintendent of the Mint by him during the month of August, 1908.

GOLD.

[illegible]

517-1000

STANDARD OUNCES.		STANDARD OUNCES.	
Received			
Balance	Aug. 1, 1908 19		
Contained in Gold Deposits	154	101	08
Contained in Silver Deposits	13	849	08
Contained in	226	019	09
Contained in	18	898	75
Clippings, blanks, etc.		797	00
	406	367	61
Delivered			
Ingot			
Bars, Fine			
Bars, Standard			
Bars, Unparted			
Bars			
Sweep			
Balance	Aug. 31, 1908		
	19		
		67	937 10
		150	200 51
		600	365 61

COOKBOOK

Superintendent.

1906

Melter und Refiner

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

September 15, 1900.

Hon. Frank A. Downer,
Supt. U. S. Mint,
Denver, Colo.

Sir:-

I have the honor of directing your attention to the conditions existing in the refinery melting room:

Ever since we began operations in the Refinery, the melting room connected therewith has been and is now overcrowded with work, and the force belonging in said melting room has never been sufficient to do the necessary melting and pouring; so that we have had to take men out of the Refinery from time to time to assist when we were pouring metal, and this tended to delay the refinery work, making it practically impossible to keep the refinery room clean, the sweepings promptly burned, etc.; and now that we are running the silver cell it seems very necessary to have at least one additional melter to enable us to keep up with the making of ^{work,} sweats and other necessary, so that we shall not again get in the condition we were in at the commencement of our last settlement, when, as you remember, after only four months' operations, we worked constantly for three weeks making sweats and burning sweepings from the Refinery, with not only our refinery melting force, but, a portion of the time, with the assistance of ingot melting room men. Thus, during most of the time that the mint was shut down for settlement purposes and many of the employes were on vacation,

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver - 2

Our melters were required to remain constantly at work. While I heard of no complaints whatever, yet a continuance of like conditions might have a tendency to cause dissatisfaction. Further, during settlement shut-down, we repair our furnaces, and when we commenced last June to make such repairs in the refinery melting room, of necessity we had to put our force of refinery melters in the ingot melting room where we kept eight furnaces in constant use; and it required, as you know, much strenuous crowding to get a sufficient number of furnaces in the ingot melting room repaired in time to commence the making of ingots when we started up.

A word here regarding the addition^{-al} amount of melting required in an electrical refinery as compared with an acid refinery might be appropriate: In an acid refinery the gold is melted just twice, first to make the proper alloy, and last the fine gold. In an electrical refinery, the gold is first melted and cast into anodes; second, the cathodes are melted and cast into fine gold bars; third, the anode tops are remelted and again cast into anodes; fourth, the slimes must all be remelted and also cast into anodes; and there is also some additional melting in the making of ingots for rolling cathode strips and anode hangers; and in the product of the silver cells there is also one additional melt of all gold, being that of melting the silver cell anodes to cast into gold cell anodes. Thus it will be readily seen that an electrical refinery requires much more melting than an acid refinery, and the size of the melting

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver - 3

force under our system cannot fairly be compared with the size under the old system.

As soon as we install the additional furnaces in the refinery melting room, it will give us four furnaces to be run with a force of five men, and we can then do our work without any assistance from the refinery force, which will be much more satisfactory in every way.

I am in full sympathy with you in your determined effort to keep our operating force at the lowest possible limit, and so have been trying to get along without any additional men, but I do not think our efficiency should be impaired in making such effort, particularly when our cost of producing fine gold is so very low as to prove conclusively the efforts we are making along economical lines.

I therefore request authority to promote helper George B. Gray to the position of assistant melter at a salary of \$4.00 per day, together with authority to appoint a helper to take the place made vacant by said Gray's promotion at a salary of \$3.85 per day.

Very respectfully,

Joseph M. ...
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

September 21, 1906.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver, Colo.

Sir:-

Heretofore it has been the invariable custom to put melters, when first appointed, on the roll at \$4.00 per day; and after they have served their probationary term, learned the work, and become satisfactory employees, to advance them to \$4.50 per day. At the present time, all of the melters in our institution, except three, are receiving \$4.50 per day; and those three, namely, R. C. Morrison, Denver Chaffee, and Kerkus T. Stoddard, have been in our employ from six to eight months, and have learned the work thoroughly and made good in every way. In fact, they are earnest and loyal employees who appear to work for the best interests of the institution at all times; and I therefore recommend that the pay of said Richard C. Morrison, Denver Chaffee, and Kerkus T. Stoddard, be increased to \$4.50 per day to take effect on the first day of October next ensuing.

Very respectfully,

John W. Wilson
Melter and Refiner.

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MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

September 25, 1906.

Hon. Frank E. Donner,
Superintendent U. S. Mint,
Denver, Colo.

Sir:-

I have the honor to present the following facts regarding the services of employes in the Melter and Refiner's department, together with recommendations as to future compensations, sincerely believing that the same will be of much benefit to the service:

Refinery:

On June 12, 1906, Mr. Robert L. Whitehead, at that time Assistant Melter and Refiner of this Mint, presented to me a written communication with reference to the refinery conditions and employes, among other things, earnestly recommending the appointment of an assistant foreman so that some person clothed with authority to direct the work might be present in case of the sickness or absence of the foreman; he also recommended the promotion of Herbert D. Bartlett, present gold-cell man, to the said position at a compensation of \$4.50 per day. He likewise recommended the appointment of a cell man to take Mr. Bartlett's place in his absence from the gold cells, as well as to assist him when present. I have had the matter under careful consideration, and have become convinced that Mr. Whitehead's recommendations on these points should be favorably acted upon.

Our splendid success in the production of fine gold in the refinery is due in part to the high degree of heat maintained in

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

November - 3

Refinery:

the gold coils, because when the heat is reduced the production is less, and the fineness is lowered; but this likewise creates a partially compensating difficulty, that is, it causes the production of hydrochloric acid fumes in such quantity as to be distressing to the workmen, and although we have hooded the coils and put in a blower, yet the conditions remain unpleasant, if not unhealthy, as we have one or more of the employees on the sick list most of the time. In fact, we have two men sick now, and there have been times when it was necessary to call a physician to the building to relieve temporarily incapacitated employees. I therefore make the following recommendations concerning the refinery force, to wit:

That Herbert D. Bartlett be promoted to the position of assistant foreman at a compensation of \$4.50 per day. That a new cell man be appointed (by way of promotion) at a compensation of \$4.00 per day.

That J. E. Crary's compensation as cell man be increased from \$3.75 to \$4.00 per day.

That the compensation of helpers, George Berstadt, Jr., H. H. Winn, Burt G. Shields, Sam R. Whitaker, Burt E. Taggart, and George E. Spencer be increased from \$3.25 to \$3.50 per day.

Refinery Melting Room:

In this melting room we are doing much work all the time, and it is the hottest place in this mint. Mr. Stodger has proven himself to be one of the most loyal and earnest workers and a splendid

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Downer - 3

Refinery Melting Room:

melter; in fact, he has made good in every way, and I earnestly recommend that his compensation be increased from \$4.00 per day to \$4.50 so as to correspond with that of Dakin, with whom he works, and particularly because he deserves it. I also recommend that the compensation of the helper George B. Gray be increased from \$3.25 to \$3.50 per day.

Ingot Melting Room:

At the present time we are making six silver melts per day, with a force of one foreman, two melters, and two helpers. They are doing splendid work, and are careful and clean in their operations. Heretofore it has been the custom after melters have served their probationary period and become proficient in their work to advance them from \$4.00 to \$4.50 per day; I therefore recommend that the compensation of melters R. C. Morrison and Denver Chaffee be increased from \$4.00 to \$4.50 per day.

I also recommend that the compensation of helpers Michael Howard and Ora L. Adams be increased from \$3.25 to \$3.50 per day.

Sweeps Cellar:

It is the opinion of several mint experts, who have visited us recently, that we are doing splendid work in our sweeps cellar; we have not accomplished all that we desire, but we have made progress, and hope in time to perfect a process that will be entirely satisfactory, not only to ourselves, but to the Mint Bureau. Much de-

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver - 4

Sweepers Celler:

pends, however, on the foreman and his assistant; they are both intelligent and practical mill men, and the former being acknowledged as an expert in that line of work. They are very careful and painstaking in making any suggested experiments, and should be encouraged to the fullest extent. I therefore recommend that the compensation of the foreman Elmer S. Smith be increased from \$4.00 to \$4.50 per day, and that of the helper Harry R. Whitehead from \$3.25 to \$3.50 per day.

Deposit Melting Room:

The work and the compensation in this room are entirely satisfactory, and I have no recommendations to make concerning the same.

In conclusion, I desire very respectfully to represent that Mr. H. L. Whitehead in my presence stated to the Honorable Director of the Mint, that living expenses in Denver were at least ten per cent higher than in Philadelphia, and of course he had lived in both cities.

All of which is submitted with the earnest hope that the recommendations herein made may meet with your approval.

Respectfully,

J. W. Whitehead
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

September 26, 1900.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver, Colo.

Sir:-

Mr. J. M. Hetrich, recently transferred from the Mint at Carson City, informs me that said Mint is in possession of a small Chilean mill in the deposit melting room of that institution, and that the same is not now, and for a long period has not been in use. We could use it to very material advantage in connection with our refinery, and I would respectfully suggest that you take the necessary steps to procure the same for us.

Respectfully,

John Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

September 28, 1900.

Hon. Frank M. Dwyer,
Superintendent U. S. Mint,
Denver, Colo.

Sir:-

I submit herewith sample page of "Melter and Refiner's Register of Bullion Deposits Received." Inasmuch as we are in need of a register of this kind (there being no such book furnished us), I respectfully suggest that three books of 200 pages each, each page containing 30 or 31 lines, and ruled and printed as indicated, be procured for use in this department.

I also submit sample of Anode melt record, with the suggestion that there be printed 1000 Gold Anode and 500 Silver Anode melt records.

Very respectfully,

John H. H. H.

Assistant Melter and Refiner.

MELTERS AND REFINERS OF BULLION BALANCES

Patent of the United States at Denver, Colorado

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of September, 1905.

GOLD.

[illegible]

SILVER:

[illegible]

COHEN

Superintendence

Bibliography

2007

Walter und Helmut

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

October 16, 1906.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

In answer to the letter of the Honorable Director of the Mint dated October 11th, 1906, referred to this department today, I have the honor to report as follows:

During the fiscal year ended June 30, 1906, there was sent the refinery 17,981.19 standard ounces of silver bullion, upon which refining charges were collected; and 10,499.75 standard ounces of silver owned by the government upon which no parting charges were imposed. There was returned from the refinery 30,941.30 standard ounces of silver, which included 778.45 standard ounces recovered from refinery sweeps, showing an apparent gain of 1,687.41 standard ounces silver in refinery.

Respectfully submitted.

Joseph M. Milam
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

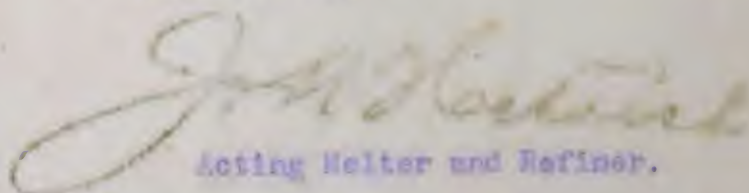
October 15, 1908.

Hon. Frank E. Turner,
Superintendent U. S. Mint,
Denver.

Sir:-

Our present stock of copper for alloy amounts to 3900 lbs.
At the present rate of consumption, this stock of copper will be
consumed in ten or eleven working days.

Respectfully,


Acting Melter and Refiner.

U. S. MINE INSPECTION
Form No. 819.
Ed. Feb. 26-50 4 x 11 1/2.

MELTERS AND REFINERS OF BULLION BALANCES.

Minist of the United States at

Der. Ver. Dolcrude.

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of October, 1908.

GOLD.

	STANDARD OUNCE			Delivered		
Received				Ingot		
Balance				Barr. Fine		
Contained in Gold Deposits				Barr. Standard		
Contained in Silver Deposits				Barr. Unparted		
Contained in				Pars		
Chipmunks, blanks, etc.				Sweep		
Oct. 1, 1906	1	148	088	176		
		104	546	488		
		10	798	910		
	1	270	011	663		
Balance October 31, 1906.	1	270	011	663		

SILVER.

[illegible]

— 150774 — K 3

110460400

1000

Stigmaphyllon

Bellevue
Atterwell Papers

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

November 13, 1906.

Mr. Hugh Abbotts Glove Factory,

Gily.

Dear Sir:

Of the four dozen pairs of gloves ordered by this de-
partment of you, two pairs were not of the right size. We order-
ed 7-1/2, and you sent us 8. We hold them subject to your order.

Respectfully,



Acting Melter and Refiner.



MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

November 17, 1906.

Hon. Frank M. Downer,
 Superintendent U. S. Mint, Denver.

Sir:

I have the honor of presenting the following report of the operations of this department during the month of October, 1906:

REFINERY.

Product was gold only, standard ounces produced, 68,380.588

Cost of operations:

a. Labor	\$478.00	Cost per oz. of gold produced	.70008386
b. Fuel	49.50	" " " "	.07249060
c. Crucibles	50.60	" " " "	.07410081
d. Acids	81.30	" " " "	.08977738
e. Incidentals	139.40	" " " "	.20415934
f. M. & R. Genl.	96.78	" " " "	.14171080
g. Supt.:			
a. Power	80.75	" " " "	.08864987
b. Mch. shp.	<u>96.15</u>	" " " "	<u>.14051722</u>
Total	\$1032.24	" " " "	1.51177504

New equipment included

in above

figures

79.45

"

"

"

"

.11636910

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

-2-

INGOT MELTING ROOM
(including Make-up)

Amount of bullion melted, all silver, standard ounces 1,596,409.32

Good ingots made, 20,062 Halves 1,526,222.20

1,171 Quarters 71,393.60

471 Dimes 30,492.26

Total good ingots made 1,628,110.06

Percentage of good ingots to amount bullion melted, .95973892

Cost of operations:

a. Labor	\$2052.29	Cost per oz. of good ingots made	.126053824
b. Fuel	356.40	" " " "	.02189041
c. Crucibles	110.40	" " " "	.00676056
d. Incidentals	404.03	" " " "	.02493873
e. U. & R. Genl.	351.49	" " " "	.02165025
f. Supt.:			
a. Power	71.62	" " " "	.00441184
b. Mch. Shp.	<u>40.89</u>	" " " "	<u>.02523722</u>
Total	\$2706.32	" " " "	.23006622

New equipment

included in

above figures \$27.45 " " " " .02441174

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

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SCHEUTE CELLAR.

Amount of sweeps treated, av. lbs. 9,000.

Product, standard cases, Gold, 98.359; Silver, 410.42.

Cost of operations:

a. Labor \$108.00
b. Incidentals 8.85
c. M. & S. Genl. 13.30
d. Supt. & Power 12.91
\$139.73

	Av.	Ac.
9736 lbs. tailings contained, by assay, std. case..	<u>98.359</u>	<u>343.47</u>
Percentage of value recovered	.8149	.8474

We are trying to systematize the procuring of the data for making this report, and trust that in the future we shall be able to present the same with earlier in the month.

Respectfully,

J. W. Milner
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

December 21, 1900.

Sir: Please to receive,

Superintendent U. S. Mint, Denver.

Sir:

I have the honor to report that I have carefully examined the blue-prints of one cupelling furnace and one crucible melting furnace furnished by the Rodwell Engineering Co. of New York. I have also considered their bids on said work. I think the equipment proposed, as shown by said blue-prints, is just what we want, and their guarantee that said furnaces will operate properly for our purposes, in connection with our knowledge of the same, warrants me in recommending the purchase of said equipment for the necessary melting room, at the prices stated in said bids, being respectively, \$1120 for the cupelling furnace, and \$375 for the melting furnace.

Respectfully,

James H. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

November 22, 1900.

W. L. W. W. W. Co.,

100 Broadway St., New York City.

Sir:

In our Refinery operations we find it necessary to pump a silver nitrate solution (containing about 5% of silver and 10% of nitric acid) from a cune tank on the floor to a supply tank about ten feet high; that is, the distance from the bottom of the cune tank to the pump base is four feet, and the distance from the pump base to the intake of the supply tank is six feet, and the amount of solution we want to handle is ten gallons per minute.

We have tried hard rubber pumps and several other methods of moving acid solution, all of which have been unsatisfactory; we have your catalog, but nothing in it seems to cover our conditions. We would appreciate it very much if you would consider the matter and advise us at your earliest convenience what, in your judgment, is the best method of arriving at the desired end.

Very respectfully,

J. W. W. W.
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

November 22, 1906.

Hon. Frank E. Dowser,

Superintendent U. S. Mint, Denver.

Sir:

I have the honor of addressing you with reference to a correction and addition to my annual report of the Melter and Refiner's department for the fiscal year ended June 30th, 1906, to wit:

Correction: Strike out the last two lines on page 3 and the first line of page 4, the sentence being, "By the use of a special form of hard rubber baskets, we now treat our gold cell tops and slimes, as well as the gold anodes from the silver cells, direct, without any melting."

I request this, because our experience since that report was made has caused us to discontinue the use of said hard rubber baskets.

Addition:

Sweeps Cellar.

One of the important departures from former methods is our manner of treating the graphite crucibles, furnace bricks, etc., by a wet process. We use an Elspass four-roller quartz mill which consists essentially of a heavy, rigid, revolving bed, upon which rests four stationary rolls: these rolls press upon the bed ring to any degree required, being regulated by a screw action on powerful coil springs. Around the circumference of the bed is a flange in which are placed screens of any desired mesh, that can be easily and quickly changed when necessary. The screen has eleven square

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

rest of iron surface in action all the time; it is attached to a
revolve with the revolving bed, and from the rapid centrifugal ac-
tion of the roller, it does not become clogged, and is very effect-
ive in doing its work. The great advantage in this mill is the
revolving bed which, in conjunction with the stationary rolls,
gives a grinding rather than a crushing effect, so that the amount
of slime produced is astonishingly small. No crusher is used in
connection with this work, but the crucibles are hammer-broken in
pieces not exceeding three or four inches square and shoveled into
the hopper of the mill, into which hopper is also fed a stream of
water properly regulated to the necessities of the work. The fine-
ness of the product is of course governed entirely by the mesh of
the screen; we have experimented with many sizes, running from 60
to 80 mesh; at present we are using the latter size and are getting
splendid results. After the crushed material passes through the
screen, it falls into the discharge casing and is washed around
the outlet where it passes through a Pierce Amalgamator into
the settling tank for tailings, and the overflow from that tank
goes into the settling tank for slimes; said tanks are 18 inches
deep, 5 feet wide, and 18 feet long, and the waste flow from the
first tank is clear water, practically free of graphite. After the
contents of the tanks had down, the water is drawn off, the tail-
ings and slimes are shoveled onto a convenient steam drier (6'x12')
and after being thoroughly dried are coupled for assay and each-
ready for transfer to the superintendent. We have just completed

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

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a run on about 14-1/2 tons of ore, and the tailings weighing 28993 lbs. contain by assay 36.496 ounces of gold and 893.73 ounces of silver. From experiments we are now conducting, we expect to still further reduce the values in the tailings.

Respectfully,

John Wilson
Melter and Refiner.

P. S.

In the September "Mining and Minerals" article, there are several inaccuracies, caused principally by later developments, some of which I will briefly refer:

Page 55, Col. 1, commencing on the last line, "The cathodes are rolled sheets of pure silver, of the same thickness as the Wohlwill process and are painted with paraffin." To correct strike out the concluding five words, because we do not paint them with paraffin, or any other material.

Page 55, Col. 2, commencing on line 31, "at the present time the scrap anodes amount to about 8 per cent. and are worked up in special cells without remelting, thus saving melting, dipping, and remelting, and with the present output it amounts to a considerable saving in a year's time." To correct, strike out the whole sentence, because we have discontinued the use of the special cells referred to, on account of the difficulty in maintaining the

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

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necessary electrical contact with the contents.

Page 57, Col. 1, commencing with last word on line 1, "the bricks that come in direct contact with the hot gases last about 2 to 3 months with constant use." To correct, strike out the figures "2 to 3" and substitute "1-1/2 to 2".

Page 57, Col. 1, commencing on line 20, "the gas furnaces were discarded and replaced with the oil burning furnaces." It is true, the gas furnaces were discarded, but not because they did not do good work, but for the reason that we were adopting a new fuel system.

Page 57, Col. 2, commencing with line 1, "The gold ingots are rolled and cut into blanks of the different denominations without any strip annealing," etc. Correction, say, "gold and silver ingots."

Wm.

U. S. MINT SERVICE.
Form No. 219.
Ed. Feb. 2-05-20-2 x 10 1/2.

MELTERS AND REFINERS OF BULLION BALANCES.

Mint of the United States at DENVER.

Gold and Silver Bullion Balances in the Melted and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the Month of November, 1908.

GOLD.

STANDARD OUNCES			STANDARD OUNCES		
Received			Delivered		
Balance			Ingots		
Contained in Gold Deposits			Bars, Fine		
Contained in Silver Deposits			Bars, Standard		
Contained in			Bars, Unperfected		
Clippings, blanks, etc.			Bars		
			Sweeps		
Nov. 1, 1908					
1	870	011	1	888	677
	116	736			360
		880			
	1	816			
	7	712			
		770			
Balance Nov. 30, 1908					
1	895	677	1	888	677
		360			360

SILVER.

STANDARD OUNCES			STANDARD OUNCES		
Received			Delivered		
Balance			Ingots		
Contained in Gold Deposits			Bars, Fine		
Contained in Silver Deposits			Bars, Standard		
Contained in			Bars, Unperfected		
Clippings, blanks, etc.			Bars		
			Sweeps		
Nov. 1, 1908					
1	451	491	1	108	677
	16	666			70
	465	600			
	24	991			
	897	800			
		80			
Balance Nov. 30, 1908					
1	451	097	1	108	677
		10			360

(Continued)

November 1

1908

Superintendent

Melter and Refiner

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

December 4, 1906.

Gen. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:-

I have the honor to present the following requisition for blank books and forms for use by this department during the next ten months:

- 1	Form No. 413-B	Silver Vault Register
- 1	" "	871 Record of Refinery Gold Melts
- 2	" "	184 Record of Silver Ingot Melting
500	" "	722 M. & R.'s statement of operations
500	" "	373 Storeroom Order
500	" "	587-E Requisition for Labor and Material
200	" "	82-E Leave of Absence
12	" "	81-C Computing Book
500	" "	546 Report of Attendance and Absence
5	Scrap Books (Mark Twain)	

Respectfully,

Jo. W. Milson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER.

MELTER AND REFINER'S DEPARTMENT.

Hon. Frank W. Donner,

Superintendent U. S. Mint, Denver.

Sir:

I have the honor of presenting the following statement of the operations of this department during the month of December, 1907.

REFINERY

Product: Gold, 82,083.613; Silver, 40,089.65; Total, 122,173.263.

Cost of operations:

In trailers of a cost

		Cost per oz. of product	
a. Labor	598.00		.00728
b. Fuel	36.30	" " "	.00044
c. Crucibles	38.80	" " "	.00047
d. Acids	48.80	" " "	.00059
e. Incidentals	184.40	" " "	.00225
f. U.S. H. Genl.	171.45	" " "	.00210
g. Supt.:			
a. Power	174.15	" " "	.00214
b. M. Sbp.	839.74	" " "	.01033
Total	<u>1424.04</u>	" " "	<u>.01483</u>

New equipment included in

above figures 180.05 " " " .00220

Silver and gold cost approximately the same per ounce as during the present time.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Percentage good ing- is to amt. belted	.00000	.00000
--	--------	--------

Cost of operations:	Cost per cr. of good ingots in fractions of a cent
1. Fuel	
2. Labor	
3. Maintenance	
4. Depreciation	
5. Interest	
6. Insurance	
7. Taxes	
8. Other	
Total	

silver wells are 1/3 smaller than gold wells, and it costs approximately the same to produce an oz. of silver ingots as it does to produce 17 oz. of gold ingots.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

SWEETS CELLAR

Amount of sweeps treated,avoirdupois lbs. 9120

Amount of metals extracted, std. ozs. Au. 39.314; Ag. 785.53

Cost of operations:

a. Labor 104.00

b. Incidentals 10.41

c. M. & R. Genl. 22.65

d. Mptl.:

a. Power 27.05

b. Mah. Shp. 34.00

Total 198.11

	Gold	Silver
1985 lbs. tailings contained by assay, std. ozs.	0.559	212.28
percentage of values recovered	.65327	.78726

Respectfully,

Joseph Milburn
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

December 30, 1908.

Hon. J. G. MacDonald,
Mngr. Union Plant.

United States Reduction and Refining Co.,
Florence, Colo.

Dear Sir:

Answering your inquiries of August 30, 1908, relative to the difference in values between the charges of gold bullion at the Union and Standard plants of the United States Reduction and Refining Company, and the credits against such charges by payments from the United States Mint at Denver, Colorado, I have the honor to present the following statement:

On said August 30th, at your request, I visited the Union plant at Florence; you personally conducted me through your works, so that I had the opportunity to and did carefully inspect your melting, pouring, cleaning, and weighing of two bars of gold bullion (your nos. 733 and 734); and the same were shipped to the said U. S. Mint on the evening of said day and were received at the mint the next forenoon (August 31st). I was present, as aforesaid, when said bars were weighed at your plant, at which time they weighed respectively 974.86 and 726.27 ozs. gross; I was also present at the mint when they were received, at which time they weighed respectively 974.86 and 726.23 ozs. gross, showing a difference loss of .08 and .08 ozs. They were carefully weighed under my personal supervision. The granules in the flux and the scrapings

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

of the available was in each case separately ground and washed, and you were given the full benefit of the same, as all depositors are, and the weights after melting were respectively 974.31 and 783.01, thus indicating a melting loss of .69 and .34 ounces, as I wrote you on August 24, 1906.

According to the figures you furnished me, the Union plant bullion shipments to the mint from Dec. 1901 to July 31, 1906, consisted of 733 bars, containing 535,046.83 gross ounces, and the mint returns to you for the same period showed the receipt of 535,759.24 gross ounces before melting, and 525,197.65 after melting, which indicates that there was a loss by drying out between the time you weighed the bullion at your plant and the time it was weighed at the mint (which is immediately upon its receipt) of 987.58 gross ounces; and also that the melting loss during said period was 571.65 gross ounces. These figures show an average loss between mill and mint, by drying out, of .5486 of an ounce for each thousand ounces shipped by you; and a loss by melting at the mint of 1.0373 ounces for each thousand ounces melted. Of course the moisture loss is absolute, although very heavy, and can only be accounted for by drying out, or difference in scales (probably both combined). The melting loss, however, is not excessive, when consideration is had of the operation by fire which eliminates most of the slag.

I am inclined to think that, by some inadvertence, we got our figures wrong on the accounts of December 1901 to July 31, 1906,

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

J.O.M. - 3

as the showing of moisture loss for that period on 74,080.65 gross ounces is 812.46 ounces, or 2.8879 ounces per thousand ounces shipped; while the melting loss is only 122.81 ounces, or 1.6545 ounces per thousand ounces melted. Of course it is possible these figures are correct, as at that time you may have used a different scale. In any event, I believe that we can arrive much closer to the actual percentages by taking the August 1, 1902, to July 31, 1906 shipments, which show the complete business of four full years. During said four years, your shipments of bullion to the mint amounted to 451,866.29 gross ounces; and the returns to you from the mint showed the receipt of 451,831.07 gross ounces, indicating a moisture or drying out loss of 75.22 ounces; and the weight after melting was 451,441.58 gross ounces, indicating a melting loss of 445.42 ounces. These figures make an average drying out loss between mill and mint of .1664 of an ounce for each thousand ounces shipped; and an average melting loss of .9956 of an ounce for each thousand ounces melted. These latter figures seem to be quite as low as it is possible to make them, and by comparison lower than some other lines of deposits.

Under date of August 29th, 1906, you furnished me with a statement of comparative assays made by you on 56 bars of bullion shipped during the months of May, June, July, and part of August of this year. From an examination of this statement, I find that top and bottom assays agreed on only three bars; that the difference in assays on 54 bars ran from one point to 7.9 points; and that on 19 bars the difference was less than one point. In our

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

J.Q.M. - 4

deposit melting work, we are required to bring your bars to such a condition that the top and bottom assays are within one point of agreement; and even at that closeness the assayer makes a second set of assays, and if he finds another variance, or in the event that the difference exceeds one point, we are required to reselt the deposit; and while your statement shows your average fineness of the 725 bars heretofore referred to, to be .94184, and the mint fineness on same to be .94275, yet it must be remembered that your fineness is based on 526,046.92 gross ounces, and the mint fineness is based on said amount of bullion less the moisture and melting loss of 859.37 gross ounces; that is, on 525,187.55 gross ounces.

You requested me to give my views regarding any remedy I might have in mind after due consideration of this matter; but that is a feature that requires additional consideration based upon the facts heretofore set forth. And, while that is ground that I am reluctant to enter upon, yet I will briefly suggest that a reduction of such moisture loss from your original weights as is indicated by the actual average taken from 451,356.29 gross ounces shipped during the four years heretofore referred to, together with some mode of melting whereby you could thoroughly mix your gold salts and pour them clean, thus eliminating the weight of the slag and making them sufficiently homogeneous so as to cause the top and bottom assays to agree more closely, would come so near to a solution

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

J.Q.M. - 5

of the matter as any I could present.

Very respectfully,

Joseph M. Meltzer
Melter and Refiner.

MELTERS AND REFINERS OF BULLION BALANCES.

Mint of the United States at

Denver, Colorado.

Gold and Silver Bullion Balances in the Melters and Refiners' hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of December, 1906.

GOLD.

Received	STANDARD OUNCES.				Delivered	STANDARD OUNCES.			
	Balance	Contained in Gold Deposits	Contained in Silver Deposits	Contained in Shipments, blanks, etc.		Ingots	Bars, Fine	Bars, Standard	Bars, Unparted
Dec. 1, 1906	1	398	187						
		877	832						
		369	015						
Sweeps bar from Dep. M. H. July-Dec				93	343				
	1	533	092	725					
Balance December 31, 1906	19								
	1	379	069	502					
	1	533	092	725					
				40	773				

SILVER.

Received	STANDARD OUNCES.				Delivered	STANDARD OUNCES.			
	Balance	Contained in Gold Deposits	Contained in Silver Deposits	Contained in Shipments, blanks, etc.		Ingots	Bars, Fine	Bars, Standard	Bars, Unparted
Dec. 1, 1906									
		234	14						
		461	214						
		42	03						
		832	102						
		29	688						
		167	328						
		10							
Sweeps bar (see above)				58	60				
Balance December 31, 1906	19								
		552	991	25					
		254	109	02					
		507	080	03					

CORRECT:

Superintendent.

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Wm. H. Bostwick
Melter and Refiner

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Hon. Frank A. Towne

Superintendent, U. S. Mint,

Denver, Colo.

Sir:

I have the honor of presenting the following statement of the operations of the Melter and Refiner's Department for the month of December, 1906:

SUMMARY.

Product, 91,407.376 ozs.; gold, 39,407.376; silver, 52,000.000.

Cost of operations

In thousands of dollars

		cost per ounce of product	
a. Labor	960.28	"	10.50
b. Fuel	55.00	"	.60
c. Crucibles	59.00	"	.65
d. Acids	33.47	"	.37
e. Incidentals	124.78	"	1.37
f. M. & B. Gen.	212.00	"	2.32
g. Supt.:			
a. Power	139.17	"	1.52
b. M. & B.	11.70	"	.13
Total	<u>1636.16</u>	"	<u>17.51</u>
New equipment	<u>878.88</u>	"	<u>9.60</u>

Cost of refining silver and gold, per ounce, approximately \$1.00.
Refinery closed down Dec. 12, 1906, for reconstruction and resumed operations on Jan. 5, 1907.

MINT OF THE UNITED STATES AT NEW YORK
MELTER AND REFINER'S DEPARTMENT

INGOTS MELTED, 1904.

			Gold	Silver
100,000.00 melted, 1904	100,000.00		533,608.800	801,717.7
100,000.00 melted, 1904	100,000.00			425,615.0
100,000.00 melted, 1904	100,000.00			8,270.3
100,000.00 melted, 1904	100,000.00			134,641.0
100,000.00 melted, 1904	100,000.00		183,614.00	
100,000.00 melted, 1904	100,000.00		24,634.82	
100,000.00 melted, 1904	100,000.00		34,857.44	
100,000.00 melted, 1904	100,000.00		533,308.38	
100,000.00 melted, 1904	100,000.00			568,528.4

100,000.00 melted, 1904. Bullion melted, .99916 .9448

Cost of operations			In fractions of cents
1. Labor	1852.80	Cost per oz. of good ingots	.159245
2. Fuel	100.40	"	.012531
3. Grease	64.40	"	.008031
4. Miscellaneous	318.38	"	.027238
5. S. & S. Dep.	301.00	"	.037541
6. S. & S. Dep.	301.00	"	.037541
7. S. & S. Dep.	301.00	"	.037541
8. S. & S. Dep.	301.00	"	.037541
9. S. & S. Dep.	301.00	"	.037541
10. S. & S. Dep.	301.00	"	.037541
11. S. & S. Dep.	301.00	"	.037541
12. S. & S. Dep.	301.00	"	.037541
13. S. & S. Dep.	301.00	"	.037541
14. S. & S. Dep.	301.00	"	.037541
15. S. & S. Dep.	301.00	"	.037541
16. S. & S. Dep.	301.00	"	.037541
17. S. & S. Dep.	301.00	"	.037541
18. S. & S. Dep.	301.00	"	.037541
19. S. & S. Dep.	301.00	"	.037541
20. S. & S. Dep.	301.00	"	.037541

There is a very small increase in the efficiency of the new work in the melting of gold and silver ingots, and the above computations are based upon the new cost for each, per ounce.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

SWEET CELLAR.

Amount of anode treated, 5000 av. lbs.

Amount of metals extracted,

Gold, 163.146 Silver, 290.12

Amount of operations:

By anode	104.00
Incidentals	10.16
By S. & S. Sol.	20.88
By anode, power	<u>16.67</u>
Total	150.36

5000 av. lbs. Tailings contained by assay, 24. 6.202; 26. 47.97

Percentage of values recovered

.92683

.92618

Respectfully,

John Wilson
Melter and Refiner

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MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

January 17, 1907.

Hon. Frank M. Downer,
Supt. U. S. Mint, Denver.

Sir:

I have the honor of calling your attention to several items contained in the monthly "cost" statement of the various plants for the month of November, 1907, insofar as such statements pertain to the Melter and Refiner's department of the Denver Mint:

1. In the item of "cost percentage of making marks" the November report showed for that month a difference between gold and silver, but the silver only is reported in said cost statement, and it is considerably higher than the gold cost, the former being \$.002351 and the latter \$.002035; and computing these costs on the same basis of cost gives average (as cost of the product was silver) of \$.002335 and not \$.002436 as shown in said cost statement, which latter figure, by the way, includes "marking equipment" which was shown on the report and should have been the cost.
2. A peculiar error seems to have been made in the cost statement in the item of cost per ounce for refining gold. The November report showed a total cost of \$.012405 (excluding cost of the equipment, as shown on our report), and yet said cost for November uses our December report on this item, showing a cost as \$.012805; of course the latter is a high figure for the Denver Mint, but is easily accounted for by a reference to the December report which says "Refinery closed down Dec. 10, 1906."

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

January 10, 1907.

semi-monthly settlements, and resumed operations on Jan. 3, 1907."

3. The monthly report blank for my department, on ingot melting room, contains an item "e. Sweep Cellar," but the Refinery does not include in such item, indicating that all the sweeps cellar costs are to be charged to the Ingot melting room. Of course I will follow the forms presented, but I cannot understand why the Refinery and Deposit melting rooms should not be charged with their proper share of said sweep cellar costs; for, as a matter of fact, we expend more work on refinery sweeps than we do on ingot melting, because on account of their exceeding richness we always sweep them twice. Further, the Sweep Cellar blank requires information on product, ^{only} as to the number of pounds of tailings produced; this does not permit any comparison with other mints, because tailings in some plants run less than one hundred dollars and in others more than nine hundred dollars per ton; nor does it give the percentage of extraction or the amount extracted; so unless you are of the contrary I shall include such additional data in my future reports.

Very respectfully,

Joseph M. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

January 29, 1907.

Hon. Frank M. Downer,

Superintendent U. S. Mint, Denver.

Sir:

With the earnest desire of giving credit personally to all those who in any way discover new methods of bettering and expediting our work, I have the honor of presenting herewith a statement of new applications and discoveries made in connection with our Refinery by Mr. B. P. Wirth, Foreman. The dates refer to commencement of experiments, all of which were carried to practical use and success:

1. The manufacture of gold chloride by electrolysis; February, 1906. This enables us to make our gold chloride rapidly and very economically without the use of nitric acid.
2. Treatment of gold-cell slimes by fire, whereby the silver chloride is removed, leaving gold from 950 to 970 fine; March, 1906; and the reduction of the fused chloride of silver with metallic zinc; July, 1906.
3. The use of an insoluble alloy for a hanger in gold-cells, whereby the remelting of tops has been reduced 95%; July, 1906. This enables us to take the top of the gold anode (that is left after all the submerged part has been dissolved) and hang it below the surface of the electrolyte, and thus dissolve it, depositing the gold on the cathodes, and doing away with nearly all of our remelting of anode tops.

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Downer - 3

4. The use of the same alloy metal in the bottom of the gold-cells, reducing the amount of slimes about 50%; Dec. 1906.

5. The reduction of alloy metal in Silver anodes; our proportion being as low as 1 gold to 1.8 alloy; July, 1906.

6. The use of a new material on silver cathodes, whereby the deposited silver can be removed from the cathode after a coherent deposit of one inch has been obtained, thus enabling us to use the same cathodes over and over again; January, 1907. This, of course, saves the expense of making and rolling silver cathode ingots.

7. A very material change in our system of agitation of the electrolyte in the gold-cells, whereby the propeller, instead of being suspended from the center of the cell, now enters the cell from the side at an angle of about 40 degrees, thereby giving us a much greater agitation and entirely eliminating the use of troublesome belts and allowing free access to both anodes and cathodes in all parts of the cell. This latter idea (No. 7) originated with Mr. Charlton, Foreman of the Machine shop, who very ably superintended the making and installation of this valuable system.

We are constantly experimenting in an inexpensive way, and from time to time as any new discoveries of importance are made, I shall be pleased to advise you.

Very respectfully yours,

J. W. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

January 30, 1907.

Frank M. Downer, Esq.,

Supt. U. S. Mint, Denver.

Sir:

I have the honor of presenting for your consideration the necessity of some method for heating to a moderate degree the electrolyte in our silver cells in the refinery. The experiments of Mr. Wirth, Foreman, have demonstrated that the same will be of material benefit, particularly enabling us to increase our product, without any danger from nitric fumes. After the consideration of a number of ways to bring this about, we have concluded that the most economical method would be to place a steam chest or heater under the sump tank, because the solution passes through that tank and we believe we can in that way procure all the heat we want in the cells.

If this proposition meets with your approval, I respectfully request that you immediately take the necessary steps to procure for us a steam chest or heater with an upright flange 12 inches deep, and measurements inside of said flange as follows: length, 54 inches, and width 29 inches, with a two inch steam space divided into as many compartments as may be necessary to make the same absolutely safe, with a cold water test of 200 lbs. pressure, and with steam inlet at one end and waste outlet at the other end.

Very respectfully,

John Wilson
Melter and Refiner.

U. S. MINT SERVICE.
Form No. 219.
Ed. Feb. 3-05-500.—8 x 10½.

MELTERS AND REFINERS OF BULLION BALANCES.

Print of the United States at Denver, Colorado.

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Deliveries to the Superintendent of the Mint by him during the month of January, 1907.

GOLD.

[illegible]

SILVER.

[illegible]

COMPLET:

January 1951

1907.

Superintendent.

Psittacula
Yellow and Red.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Denver, February 9, 1907.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

I have the honor of calling your attention to a matter of serious importance to the Melter and Refiner's Department, to wit:

On the 7th inst you delivered to us by transfer gold shavings in amount, as evidenced by our receipt, of 1065.71 standard ounces, and we are charged with said amount, at the standard fineness of .900.

Ever since the making of these shavings commenced, we have had a doubt as to their fineness, and to accurately determine the question we used all known precautions to prevent the contamination of said shavings in any way; and immediately after their receipt we took them into the ingot melting room, and melted them with the greatest care, using a new crucible and carefully transferring them to the crucible from the box over a metal plate, so as to prevent any loss. We took dip samples for assay, and poured the metal into three bars weighing 1051.43 ounces; then scraped the crucible, cleaned everything up carefully and made a sweat from which we secured a King weighing 5.03 ounces, and the assayer's samples weighed .60 ounce, making a total of 1057.06 ounces--showing a loss by weight of 8.85 ounces. The assayer certified that said bars were of a fineness of .8991, thus showing a loss in fineness of 1.03

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Downer - 2

ounces, making the total loss to this department of 9.71 standard ounces, of a value of \$180.65. In addition to the said loss of this department, the corner suffers a loss of 10.74 ounces silver, as the assay on said gold shavings bars shows .00915 in silver, and of course the same is of no use to us, as it simply takes the place of that amount of copper.

Further, if we should have attempted to use said shavings as we do ordinary clippings it would have caused the condemnation of every gold melt into which they had been put, because of the fact that they were nine points below standard and six points below the minimum limit allowed on ingots.

I therefore respectfully ask that we be not required to receive any more shavings from either gold or silver, and that we be reimbursed for the loss hereinbefore shown, to wit, 9.71 standard ounces gold, of a value of \$180.65.

Respectfully submitted,

John Milcom
Melter and Refiner.

INGOT BALANCE SHEET.

1. Amount of Bullion melted.....	Standard bullion
a. Silver.....	199,129.25
b. Gold.....	542,294.27
c. Nickel.....	
d. Bronze.....	

2. Amount of good ingots made:	
a. Double Eagles.....	51,271.62
b. Eagles.....	427,723.47
c. Half Eagles.....	51,242.83
d. Half Dollars.....	13,400.40
e. Quarter dollars.....	79,509.10
f. Dimes.....	23,703.73
g. Five cents.....	
h. One cent.....	
Total.....	680,951.24

3. Cost of Ingots:

	Gold.		Silver		Total	
	Total	Per oz.	Total	Per oz.	Total	Per oz.
a. Labor	574.58	.001248	150.27	.001248	825.25	.001248
b. M. & R. Gen.	143.29	.000265	32.00	.000265	175.29	.000265
c. Mitts, Gloves	17.63	.000032	5.94	.000032	23.57	.000032
d. Crucibles	42.41	.000078	9.47	.000078	51.88	.000078
e. Sweep Cellar	172.84	.000332	40.17	.000332	220.01	.000332
f. Supt. Dept.						
1. Fuel	71.86	.000133	16.06	.000133	87.94	.000133
2. Power	26.71	.000049	5.97	.000049	32.68	.000049
3. Repairs	33.14	.000061	7.40	.000061	40.54	.000061
4. Incidentals	88.62	.000164	19.79	.000164	108.41	.000164
Total.....	1278.10	.002365	285.47	.002365	1563.57	.002365

New Equipment, \$12.30

4. Percent. of good ingots to amount of bullion melted, gold, .9859	
" " " " " " silver, .9345	

5. Cost distributed to denominations:	Total.	Cents per oz.
a. Double Eagles.....	73.97	50.00
b. Eagles.....	1039.26	50
c. Half Eagles.....	144.87	30
d. Half dollars.....	43.53	25
e. Quarter dollars.....	125.26	15
f. Dimes.....	23.02	10
g. Five cents.....		5
h. One cent.....		
Total.....	1563.57	50.00

P.S.

	Gold		Silver		Total	
	Total	Per oz.	Total	Per oz.	Total	Per oz.
"Alloy Copper" cost	593.26	.001099	102.12	.000940	695.38	.001019

REFINERY.

1. Product:	Standard Oze.
a. Gold.....	204,855.504
b. Silver.....	85,000.000
Total.....	289,855.504

2. Cost:

	Total.	Cents per oz.
a. Labor.....	1063.14	30.005048
b. Crucibles, covers, rings.....	109.00	.000330
c. Acids.....	350.57	.001002
d. Incidentals.....	122.00	.000351
e. Wite, gloves, aprons.....	89.50	.000227
f. Chemicals.....	30.00	.000020
g. M. & R. Dept. General.....	370.22	.001122
h. Supt. Department:		
1. Fuel.....	122.65	.000371
2. Electric Current.....	338.06	.000930
3. Repairs.....	26.46	.000202
Total.....	3302.42	.010011
3. New Refinery Equipment.....	613.27	
Total.....	\$4116.39	

SWEEP CELLAR.

1. Product:

a. Sweeps, 9527 Pounds.

2. Cost:

a. Labor.....	\$183.00
b. Incidentals.....	15.83
c. Supt. Dept.:	
1. Power.....	20.18
2. Repairs.....	3.00

Total..... \$220.01

New Equipment..... \$16.30

3. a. Amount sweeps treated, 9527 lbs.			
b. " metals extracted, Gold, 219.713 std. ozs.:		Silver, 70.87	et
c. " tailings, 9527 lbs.			
d. " value in tailings, gold	36.708	"	414.64
e. Percentage of extraction	.6557	"	.4726

Respectfully submitted on this 6th day of February, 1907.

Joseph M. Wilson
 Smelter and Refiner.

Amount sweeps refined, 247,716.77 ozs.
 Cost per ounce, 90.000497

San Francisco, California

Superintendent U. S. Mint, Denver.

Sir:

The foregoing report was completed and typewritten on the 8th inst., and thereafter came your instructions to include the "copper alloy" and "crude ounce" costs.

As we had ^{not} heretofore included the alloy copper in any account, the same has been added as a postscript to the original report on the Ingot Melting Room.

As to the cost per "crude" ounce of refining, I do not know of any possible way in which such figures can be accurately obtained, because, in the electrolytic process of refining, it is necessary to carry so much gold in the refinery that it is impossible to determine the particular crude used during any specified time. For instance, on the last day of January, the refinery had in its possession a balance of 220,822.461 standard ozs. of gold and 103,474.76 standard ozs. of silver, some of which was undoubtedly carried over from December (and practically all of the same will be refined during the month of February). In fact, to do our refinery work economically, it is necessary to carry from ten days' to two weeks' supply of gold on hand, so that anodes, cathodes, hangers, etc., can be kept in stock that there may be no delay at any stage of the work; so it is apparent that the crude bullion charged to the refinery, say, from Dec. 20 to Jan. 20, would much more closely approximate the crude refined in January, than would the crude delivered to the refinery in the month of January. It is equally apparent that there can be no close relation between the particular crude delivered in any month and the refined product for the same month. However, approximating from the average fineness of our anode melts and the amount of standard ounces produced, we arrived at a conclusion which I have added as a postscript to the refinery statement. Trusting this may be satisfactory, I respectfully submit the same this February 11th, 1907.

J. W. Milburn

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

February 13, 1907.

Hon. Frank M. Downer,

Superintendent U. S. Mint, Denver.

Sir:

Anent your inquiry concerning the Alberene stone sinks, raised by my requisition of this date for a lead lined wood sink for the refinery, I have the honor to present the following statement of facts:

When we commenced operations in our refinery in January, 1906, we had, as part of our equipment, two Alberene stone sinks; one in the refinery proper, size 9'x 2'x10" inside measurement, and one in the refinery laboratory, size 44"x 20"x 10", inside measurement. The former commenced to crack in July, 1906, and the crack developed so much that we took it out in September following and substituted temporarily a lead lined wood sink; the laboratory sink commenced to crack in October, 1906, and it has developed to the point where it leaks continually. These two sinks were made of slabs of Alberene stone, and believing that if the sink could be made out of one solid piece it would stand our work, we procured such an one for the refinery, size 54"x 25"x 10", and it was set in place December 31st, 1906, and commenced to crack about the first of this month, and the crack has now developed to the point where it leaks continuously. These cracks all developed gradually, and were not the result of carelessness or blows of any kind, but, in our opinion, were caused by the continual use of hot water.

MINI OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

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This morning's requisition was made for a lead lined wood sink to
take the place permanently of the last sink hereinbefore referred
to.

Very respectfully,

J. J. [Signature]
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

February 13, 1907.

Hon. Frank M. Downer,

Superintendent U. S. Mint, Denver.

Sir:

I have the honor of calling your attention to a very unpleasant error occurring in the report of the Director of the Mint for 1906; that is, unpleasant for the Denver Mint, and especially the Melter and Refiner's department thereof. On page 48, our report shows that we recovered a surplus of both gold and silver during the year ending June 30, 1906, to wit, 165.461 standard ounces of the former and 2420.06 standard ounces of the latter; yet the concluding paragraph of what appears to be our report states:

"At the annual settlement of the melter and refiner's accounts it was found that there had been a wastage during the year of 110.24 standard ounces of gold, valued at \$2,050.97, being 13.89 per cent of the legal allowance on the amount received from the superintendent, or 14.36 per cent on the amount operated upon; and 61.70 standard ounces of silver, being 24.91 per cent of the legal allowance on the amount received from the superintendent, or 25.19 per cent of the amount operated on."

Said paragraph was not included in the report as it left our office, and, of course, states the very opposite of what is shown by the preceding details of the report to be the facts.

I trust there is some way by which this error can be corrected, so that it may be known that we do not claim a final surplus in one part of our report and show a final loss in another part.

Very respectfully,

John W. Wilson
Melter and Refiner.

**MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,**

February 25, 1907.

Hon. Frank M. Downer,

Superintendent U. S. Mint, Denver.

Sir:

I have the honor of reporting the following facts relative to all the ingot melts that could possibly have entered into the making of the double eagle coins included in coin transfer No. 33 of May 2, 1906. The first melt of double eagle ingots made in April, 1906, was on the 17th day of that month and numbered 93, and the last melt of the same denomination made in that month was numbered 140, made on April 30th. So I have included in a tabulated statement following, all of said melts numbered 93 to 140, inclusive, showing, to wit, the date of each ingot melt, the ingot number of the melt, the number of the fine gold melt or melts from which the ingot melts were made, the gross weight of the fine gold used in each melt, the fineness of each fine gold melt, taken from the assayer's original certificates of assay, the ounces of alloy copper used in each melt, the standard ounce weight of each melt as made up, the standard ounce weight of the ingots produced in each melt, the fineness of the ingots of each melt, taken from the assayer's original certificates of assay and the amount of copper included in each melt to cover loss of copper by oxidation. Such tabulated statement therefore shows fully the composition of each melt as prepared in the make-up room; and to each melt there is added in most instances a sufficient amount of clippings (presumed to be of standard fineness) to bring the melt up to the desired size, shown in the column under the heading "weight of resulting melt

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Date	No.	No.	Gross Wt.	Fine.	Ozs.	Std. Wt.	Std. Wt.	Imp.	Ass.
1906 Mlt.	Ing.	Fine	Fine		Alloy	Make-up	Resulting	Assay	Copper
		Gold	Gold		Copper		Melt		Content
17	93	52	1185.53	99998	131.87	1317.30	4982.81	.8097+	.75
	94	53	1168.59	99992	129.73	1293.32	5357.89	.8097+	.75
	95	53	1833.52	"	138.84	1370.46	5107.02	.8098+	.75
	96	53	1270.96	"	141.10	1412.08	5413.35	.8097+	.75
18	97	53	1401.10	"	155.55	1556.65	4207.04	.8098	.75
	98	54	1468.42	99995	185.02	1431.50	5239.51	.8097+	.75
	99	54	1471.31	"	185.39	1834.70	5163.84	.8099	.75
	100	54	1501.74	"	168.77	1688.51	5773.53	.8095	.75
19	(101	54	778.53	"	86.46	884.92			
	(101	55	3001.33	"	353.31	3534.64	5496.97	.8092+	1.00
	(102	55	2702.79	"	300.15	3002.94			
	(102	56	986.14	9999	107.24	1073.32	5332.65	.8097	1.00
	103	56	3555.79	"	394.89	3950.48	5193.93	.8097+	1.00
	(104	56	1768.29	"	196.28	1964.57			
	(104	57	1835.60	99986	203.87	2039.27	5277.79	.8097+	1.00
20	105	57	733.07	"	81.33	814.40	5045.91	.8097	.75
	106	57	775.52	"	82.04	861.56	5966.64	.8097+	.75
	107	57	685.07	"	78.01	761.08	5536.01	.8095	.75
	108	57	717.95	"	79.84	797.89	5502.21	.8097+	.75
21	109	58	2878.45	99986	319.58	3127.83	5181.67	.8099	1.00
	110	59	3572.26	9999	396.52	3968.78	5187.28	.8092	1.00
	111	59	3468.66	"	380.02	3953.69	5211.28	.8093	1.00
23	112	60	811.29	99994	90.08	901.37	5282.74	.8097+	.75
	113	60	737.87	"	81.93	819.30	5234.78	.8097+	.75
	114	60	713.76	"	79.25	793.01	5239.92	.8097+	.75
	115	60	751.12	"	81.18	812.30	5266.71	.8093+	.75
	116	60	4461.31	"	495.40	4956.71	5463.40	.8092+	1.00
24	117	61	4841.04	99986	514.94	5155.93	5145.25	.8092	1.00
	(118	61	1845.95	"	204.81	2050.76			
	(118	62	2909.10	9999	311.03	3113.13	4025.82	.8097	1.00
	(119	62	1768.30	"	196.28	1964.58			
	(119	63	2813.61	99993	312.40	3126.01	5064.17	.8090	1.00
	(120	63	3007.52	"	333.93	3341.45			
	(120	64	1855.18	99987	183.86	1858.24	5753.32	.8097	1.00
	(121	64	188.65	"	20.93	209.58			
	(121	65	4795.45	99993	467.81	4861.26	5945.50	.8096	1.00
25	(122	65	1218.43	"	135.98	1353.71			
	(122	66	3302.22	9999	366.54	3665.70	4447.80	.8097+	1.00
	(123	66	1854.98	"	205.90	2060.80			
	(123	67	2644.91	99992	293.64	2938.55	5182.90	.8098+	1.00
	(124	67	931.85	"					
	(124	68	3741.46	99992	516.77	5191.48	5025.01	.8097	1.00
	125	69	4655.52	99997	512.23	5135.75	5514.85	.8092+	1.00
	(121	69	742.76	"	82.50	826.76			
	(121	70	3856.05	99995	428.23	4284.22	5079.44	.8092	1.00

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

743 Int. Lb. Oz.	744 Ass. Lb. Oz.	745 No. Fine Gold Melt	746 Gross Wt. Fine Gold	747 Fine.	748 Oss. Alloy Copper	749 Std. Wt. Make-up	750 Std. Wt. Resulting Melt	751 Ingot Assay	752 Oss. Copp. Oxid.
	146	70	723.82	99995	87.89	877.35	5135.15	.8998*	.75
	147	70	985.08	"	110.50	1105.58	5252.30	.8997	.75
	148	71	750.42	99986	83.95	840.57	5236.11	.8998*	.75
	149	71	730.53	"	84.38	844.91	5238.07	.8997	.75
	150	71	722.54	"	80.61	807.15	5219.90	.8999	.75
	151	71	1037.54	"	115.04	1151.86	5369.72	.8997	.75
	152	72	907.33	99987	83.14	892.47	5802.05	.8998	.75
	153	72	754.29	"	87.82	877.31	5625.58	.8998	.75
	154	72	2549.13	"	399.58	3993.56	5524.11	.900	1.00
	155	72	5684.89	"	405.68	4071.57	4879.69	.8999*	1.00
	156	72	3370.44	99992	397.06	3973.50	5553.40	.8999	1.00
	157	73	528.08	"	58.08	586.70	5322.47	.8997*	.75
	158	73	520.95	"	59.61	596.56	5360.62	.8997*	.75
	159	73	527.05	"	58.51	585.56	5363.40	.8999	.75
	160	73	722.57	"	81.44	815.01	5758.35	.8998	.75

The foregoing tabulated statement, taken from our records without change or additions, shows Ingot Melt No. 121 twice, first on April 24th, and again on the next day, April 25th; such duplication in our records being accounted for as follows: On or about said date, the Assayer believing the roughness of some of the ingots prevented him from getting a satisfactory percentage of good blend in melting, requested me to pick out the rough ones for remelting, and not require him to accept them; upon making a personal examination, I found that there were some grounds to sustain his belief, and on April 25th I concluded to and did sort out for remelting 102 ingots from Melt No. 121, consisting of 70 ingots, and 32 ingots from Melt No. 120, 21 ingots from Melt No. 122, and 8 ingots from Melt No. 123, all of which had been passed by the Assayer as to fineness, and on that day I had the same number (121) given to the melt then being made; and on the next day, April 26th, the said

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Downer - 4

gots so sorted out and withdrawn were all remelted (being used the same as clippings), in melts Nos. 126, 127, 128, and 129, all of which were found to be of the required fineness by the Assayer. We immediately took the necessary steps to make smooth ingots, and our product ever since has been very satisfactory to the Coiner.

The first ingot melt of any kind ever condemned in the Denver Mint, was Gold Melt No. 174, double eagle ingots, made on May 10, 1906.

It is not possible for coin transfer No. 35 of May 2, 1906, to have contained any coin made from ingots delivered by the Melter and Refiner later than the last day in the month of April, as ingots delivered May 1st could not produce finished coin for transfer on May 2d. From April 18th to April 30th, inclusive, we delivered to the Coiner, through the Superintendent, 228,624.57 ounces of double eagle ingots, and received through the same channel 64,192.88 ounces of double eagle clippings, and the Coiner's statement shows that during the same period he delivered to the Superintendent 124,968.75 ounces of double eagle coins, leaving a balance in his hands on May 1st from double ingots received by him during said period prior to May 1st, of 39,462.94 ounces. On May 2d and 3d we received additional double eagle clippings amounting to 15,358.30 ounces, and the Coiner's statement shows that on said dates he delivered to the Superintendent 26,875.00 ounces double eagle coin, making a total of 42,231.30; which indicates

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Downer - 5

clearly that the Coiner had on May 3d disposed of all the double eagle ingots received April 18 to 30, inclusive, either by transfer of coin or clippings. At the times hereinbefore referred to we were running very close on fine gold, and clippings were returned almost daily, to enable us to make the necessary ingot melts; and from a consideration of all these facts it does not appear possible that clippings from any of the ingots that went into coin transfer No. 33 of May 3d could have gotten into ingot melt No. 174 on May 10th, the first one condemned.

Respectfully submitted,

J. W. Milane
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

February 11, 1907.

Hon. Frank A. Denver,
Superintendent U. S. Mint,
Denver.

Sir:

I have the honor as well as the pleasure of answering your letter of February 12, 1907, inquiry of Hon. Frank A. Denver, Superintendent of the San Francisco Mint, with reference to the results of our experiments in changing the form of the combustion chamber of our melting furnace, as follows:

We originally rounded the corner opposite the point where the gas and air enter the combustion chamber, it was found to be a great melting room. The result of the use of that furnace was not as completely noted as it might have been, and the report did not show any great difference from that of the regular furnace. Next we rounded all the corners, except the one where the steel enters. In a furnace for the tinery melting room, and it has been found to be a great melting room, and the matter in charge of that room informed me that it was a great deal of material benefit in the use of the furnace; that the steel melted down quicker and the work with less oil than in the regular furnace; however, he has also closed the top of the furnace, the combustion chamber, so that all heat escapes from the bottom. The heat must come in the top of the crucible and pass out from the top through a passage made in the back slider. This is a great deal of heat, and it is unavoidable, and there is doubtless some desire in improving the furnace.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

...we are having further experiments on these lines (I have just
...another furnace in the huge melting room built with round corners
...the crucible chamber) but I am fully satisfied now that I shall
...the round corners for all the furnace. With the rounded corner
the space is not as deep as of course less than in the square
...furnace, and further the blast in the round cornered chamber
...is a driving or circular motion around the crucible, while
...is not as deep as was uniformly, and the drive of the blast is no
...concentrated as was upon one side of the crucible, and that means a
...of the blast, as indicated by the experiments in the Refinery

I am pleased to report any material facts developing from
these experiments.

Very respectfully,

John Wilson
Melter and Refiner.

U. S. MINT SERVICE.
Form No. 219.
Ed. Feb. 3-05-500.-8 x 10 1/2.

MELTERS AND REFINERS OF BULLION BALANCES.

Print of the United States at

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of February, 1907.

GOLD.

STANDARD OUNCE.		STANDARD OUNCE.	
Received		Delivered	
Balance		Ingots	
Contained in Gold Deposits		Bars, Standard	
Contained in Silver Deposits		Bars, Unparted	
Contained in		Bars	
Clipping, blanks, etc.		Sweeps	
Feb. 17/07		Balance Feb. 28, 1907	
19		19	
1	588 509 020	1	588 158 580
133	570 440	1	001 260 899
122	986 350	1	588 415 919
1	588 415 819	1	588 415 919

SILVER.

[illegible]

CONJECT:

Superintendent.

1907

Scirpoides
Mellor & Co.
-super-

INGOT MELTING ROOM

1. Amount of Bullion melted:	Standard Ounces.
a. Gold	388,554.870
b. Silver.....	237,250.180
Total	625,805.050

2. Amount of good ingots made:	
a. Eagles.....	375,353.390
b. Quarter Dollars.....	15,442.15
c. Dimes.....	216,582.25
Total	607,377.790

3. Cost of Ingots:	Gold		Silver		Total	
	Total	Per ounce	Total	Per ounce	Total	Per ounce
a. Labor	\$449.40	.001197	345.70	.001489	795.10	.001309
b. M.&R.Gen:	117.75	.000313	90.59	.000390	208.34	.000343
c. Mitts, glvs	5.53	.000014	4.25	.000018	9.78	.000016
d. Crucibles	27.29	.000072	20.99	.000090	48.28	.000079
e. Sweeps Cel.	75.26	.000200	57.90	.000249	133.16	.000219
f. Alloy Copper	420.81	.001121	328.70	.001395	744.51	.001225
g. Incidentals	38.14	.000101	29.33	.000127	67.47	.000111
h. Supt. Dept.						
1. Fuel	60.53	.000161	46.57	.000200	107.10	.000176
2. Power	2.20	.000005	1.70	.000007	3.90	.000006
3. Repairs	16.63	.000044	12.80	.000055	29.43	.000047
Totals	\$1213.54	.003228	\$935.53	.004020	\$2147.07	.003581

4. New Equipment..... 228.89

5. Sick leave, vacations and holidays..... 59.57

Total Expense \$2435.55

6. a. Per cent of good ingots made to amt. bullion mlt'd, Gold .9655+
 b. " " " " " " " " " " Silver .9979+

7. Cost distributed to denominations:	Total	Cost per ounce.
a. Eagles	\$1213.54	.003228
b. Quarter Dollars.....	68.15	.004020
c. Dimes.....	871.40	.004070
Total	\$2147.07	.003581 (average)

REFINERY.

1. Product:	<u>Fine Ounces</u>	<u>Standard Ounces</u>
a. Gold.....	277,400.458	308,222.709
b. Silver.....	88,231.680	98,035.200
Totals.....	<u>365,632.118</u>	<u>406,257.909</u>
2. Costs:	Totals	Cents per oz.
a. Labor	\$1464.81	.36056
b. Crucibles, covers, rings....	83.40	.02052
c. Acids.....	358.59	.08825
d. Incidentals.....	133.45	.03284
e. Mitts, gloves, & aprons...	78.37	.01929
f. Chemicals.....	25.00	.00615
g. Sweeps cellar.....	71.64	.01763
h. M. & R. Gen'l	208.33	.05128
i. Supt. Dept.:		
1. Fuel oil.....	160.12	.03941
2. Power.....	485.03	.11939
3. Repairs.....	52.75	.01298
4. Light.....	102.31	.02518
Totals.....	<u>\$3223.80</u>	<u>.79348</u>
3. New Refinery Equipment.....	494.03	
4. Sick leave, vacations, holidays	<u>68.94</u>	
Total Expense.....	<u>\$3786.77</u>	
5. Crude oil, refined, ounces, appx.....	<u>448,222.080</u>	
6. Cost per crude ounce.....		.72784
7. Cost per standard ounce.....		.79348
8. Cost per fine ounce.....		.88170

SWEEPS CELLAR.

1. Product:

a. Sweeps.....	13,273 pounds
b. Gold.....	127.349 standard ounces
c. Silver.....	402.103 " "

2. Costs:

a. Labor.....	\$138.50
b. Power.....	17.10
c. Repairs.....	3.30
d. Light.....	37.44
e. Incidentals.....	<u>20.00</u>
Total.....	\$216.34

3. Tailings:

a. Amount.....	13,273 pounds
b. Contained gold....	45.182 standard ounces
c. " silver..	343.537 " "

4. Percentage of extraction:

a. Gold.....	.739
b. Silver.....	.539

5. Departments charged as follows:

a. Refinery.....	\$ 71.64
b. Ingot melting room	133.16
c. Coiner.....	<u>11.54</u>
Total	\$216.34

Denver, March 9, 1907.

Hon. Frank M. Donner,
Superintendent U. S. Mint,
Denver.

Sir:

I have the honor of presenting herewith the monthly report of the operations of the Melting and Refining Department of the Denver mint for the month of February, 1907:

Complying with your request, I respectfully present the following observations with respect to the form and contents of said report:

My January report was made in strict conformity with the report blanks sent out by the Director under date of January 23, 1907, except as to the Sweeps Cellar, to which there was a necessary addition to show the results obtained in that department. Under the requirements of the Director's letter of February 25, 1907, (presuming that it applies as well to the reports of operative officers as to the Superintendent's), I have shown the cost per ounce for refining in fractions of a cent and the cost of making ingots in fractions of a dollar. I believe it would be better to have this basis uniform, and, in my opinion, "fractions of a cent" basis is the better. As to the "alloy copper" item, it seems to be misleading to include it in the "cost" of operations; the percentage of alloy is of course the same in all the mints, and therefore it might be better to carry it as a separate item, the same as "new equipment." Where one mint works on coining new silver and another on "uncurrent coin," the "total" cost varies considerably; for instance, the report for the month of January of the Philadelphia Mint shows a charge of only \$4.47 for copper, while the Denver mint is charged \$593.86. So it would perhaps be better to cut that charge out of the "costs" entirely, as it cannot vary on like work in any of the mints.

Referring again to the cost of refining per "crude" ounce, and presenting my letter accompanying the January, 1907, report of this department on the same subject: An estimate based upon the final product

of a refinery is probably not an fair a test as if based upon crude ounces treated, unless all the refineries were operating upon crude the same class of bullion, which, of course, is impossible. To illustrate, the product of the American Smelting and Refining Co. averages an average about .995 fine; that product is simply run into anodes (with a small amount of low grade bullion added), and run through the gold cells and the result is a very large percentage of fine gold at the minor cost. As against this, consider the Camp Bird Cyanide bars which run from .400 to .450 fine; we first make them into anodes for the silver cells, and after they have passed through the silver cells we recast the gold product and make anodes for the gold cells through which they must also pass; and the final result is a much smaller percentage of gold (or gold and silver) than the A.S. & R. Co.'s bars produce, and at an increased cost, although in each instance operating upon the same original amount of crude. However, it is practically impossible to determine the amount of crude treated during any given period unless a complete clean-up is made each time, and that cannot be accomplished in less than two or three weeks in an electrolytic refinery. So that way of determining the matter for monthly reports is eliminated. I notice the Philadelphia mint report covers this item by "crude bullion sent to refinery." In the Denver mint that method would be meaningless, because as shown in my former letter, above referred to, "there can be no close relation between the particular crude delivered in any month and the refined product for the same month." To show more clearly what I mean I will give actual accounts taken from our records, to wit:

We started up the refinery, after settlement last year, on July 10th, and from that date to the end of the month we sent to the refinery 265,073.07 gross ounces and received from the refinery during the same period 181,030.22 gross ounces of fine gold, which left on hand in the refinery on August 1, 1908, 184,042.85 gross ounces, less of course whatever base metals had been eliminated by refining. During August we sent to the refinery 243,377.39 ounces of bullion which with the balance on hand at the first of the month made a total of 427,420.24

against the refinery for the month of August of 437,420.23 gross ounces, and during the month of August we received from the refinery 268,897.75 gross ounces fine gold, leaving on hand in the refinery on September 1 168,522.48 ounces which would last approximately half the month of September following.

However, as the work of a refinery is the parting of metals, I believe the truest test of work performed would be based on the amount of base metals eliminated; but, owing to the reasons already given, that prevents the correct ounces of crude bullion treated from being obtained for any given period, the amount of base eliminated cannot be obtained other than by approximation. So after careful consideration of the matter I think the cost of the refinery for monthly reports might be based wholly on the product, as that is the only exact figure obtainable, and the annual report might show in addition the amount of crude bullion treated, as well as the amount of base eliminated.

I have made a few changes in the sweep cellar report^{so} as to exhibit fully and clearly the operations of that department.

Respectfully,

John W. Milson
Melter and Refiner.

-2-

REFINERY.

1. Product:	Fine Ounces	Standard Ounces
a. Gold	195,823.107	217,581.230
b. Silver	95,999.994	106,666.660
Total	291,823.101	324,247.890

2. Costs:

	Totals	Cents per oz.
a. Labor	1065.02	.32845
b. Crucibles, covers, rings	108.67	.03351
c. Acids	253.55	.07202
d. Incidentals	147.92	.04561
e. Mitts, gloves, aprons	55.95	.01725
f. Chemicals	25.00	.00771
g. Sweeps Cellar	64.64	.01993
h. M. & R. Genl.	138.90	.04283
i. Fuel	119.47	.03684
j. Power	396.52	.12228
k. Repairs	31.77	.00979
l. Light	160.00	.04934
Totals	2547.41	.78556
3. a. New Refinery Equipment	532.48	
b. Settlement clean-up expense	914.38	
4. Sick leave, vacation and holidays	24.28	
Total Expense	4018.55	

5. Crude bullion refined, approximate ounces	<u>378,367.366</u>
6. Cost per crude ounce67326
7. Cost per standard ounce78563
8. Cost per fine ounce87292

-3-

SWEEPS CELLAR.

1. Product:

a. Sweeps, avoir. lbs.	16,834
b. Gold, standard ounces,	425.576
c. Silver, " "	483.702

2. Costs:

a. Labor	152.59
b. Power	35.57
c. Repairs	8.20
d. Light	40.00
e. Incidentals	<u>22.65</u>

Total	259.01
-------	--------

3. New Equipment	0.00
------------------	------

4. Vacation, sick leave and holidays	<u>37.75</u>
---	--------------

Total Expense	<u>296.76</u>
---------------	---------------

5. Tailings:

a. Amount, 16,834 avoir. lbs.	
b. Contained Gold, standard ounces,	112.074
c. " Silver " "	358.702

6. Percentage of extraction:

a. Gold, .7915
b. Silver, .5741

7. Departments charged as follows:

a. Ingot melting room	162.50
b. Refinery	112.38
c. Coiner	21.88

Respectfully submitted,

John Wilson
Melter and Refiner.

Denver, April 8, 1907.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Denver, April 26, 1907.

RECEIVED of Frank M. Downer, Superintendent of U. S. Mint, Denver, Colorado, the following Gold Bullion, coming through the Settlement Commission, from Coin Transfer 33, sixteen bars, weighing 6218.33 gross ounces; one bar of same Coin Transfer, weighing 1649.10 gross ounces; clipped coins and assay clippings from same Coin Transfer, 443.38 gross ounces; and clipped coins and assay clips from Coin Transfers 29 and 35, weighing 152.15 gross ounces; Total 8,462.96 gross ounces.

J. W. Milson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

April 29, 1907.

RECEIVED of Frank M. Downer, Superintendent of the Mint of the United States at Denver, Colorado, at Settlement March 31, 1907, eight hundred and seventy thousand four hundred and forty-eight and six hundred and twenty-three thousandths (870,448.623) standard ounces of gold, and eight hundred and nineteen thousand six hundred and two and fifty-one hundredths (819,642.51) standard ounces of silver.

J. W. Milson
Melter and Refiner

MELTERS AND REFINERS OF BULLION BALANCES.

Plaint of the United States at DENVER.

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Deliveries to the Superintendent of the Mint by him during the month of March, 1907.

GOLD

[illegible]

SHIRAZ

STANDARD OUNCES.				STANDARD OUNCES.			
Received				Delivered			
Balance	19	594	863	48	Ingot	168	752
Contained in Gold Deposits		12	623	09	Bars, Fine		55
Contained in Silver Deposits		1	003	46	Bars, Standard		
Contained in		3	871	35	Bars, Unparted		
Chippings, blanks etc		51	230	50	Bars		
					Sweeps, Ingot Mfg. room		211
Fine bars		506	349	46	" Refinery		620
Sweep bars			50	12			67
Collector's sweeps			5	57			
Surplus, set in it		11	589	87	Balance	19	013
						1	013
		1	231	587	00		1
							181
							687
							70

1022

1907 I 2311

Superintendent.

Journal of the
Society of Friends
in America

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

April 30, 1907.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

I have the honor of presenting the following as my estimate of the supplies necessary for the use of the Melter and Refiner's Department for the fiscal year commencing July 1, 1907:

Graphite Crucibles, Dixon's No. 80, Mint Special	400
" " " " 14	50
" Covers for " " 80 Mint Special Crucible	100
" 4" Rings for " " " " " "	200
" 2" " " " " " " " "	200
" Stirrers, round, Mint Special, for gold	50
" Dipping cups, Dixon's No. 2	100
" " " " " 3	100
" " " " " 4	200
Clay Crucibles, 20 gm.	200
Clay Crucibles, Battersea "K"	100
Fire Clay, the best	lbs. 2000
Charcoal, powdered	bbls. 15
" granulated	" 25
Best Lard	" 2
Acid, Sulphuric Com. (66° Be.)	tens 5

MINT OF THE UNITED STATES AT DENVER.
MELTER AND REFINER'S DEPARTMENT.

April 30, 1907.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

I have the honor of presenting the following as my estimate of the supplies necessary for the use of the Melter and Refiner's Department for the fiscal year commencing July 1, 1907:

Graphite Crucibles, Dixon's No. 80, Mint Special	400
" " " " 14	50
" Covers for " " 80 Mint Special Crucible	100
" 4" Rings for " " " " " "	200
" 2" " " " " " " " "	200
" Stirrers, round, Mint Special, for gold	50
" Dipping cups, Dixon's No. 2	100
" " " " 3	100
" " " " 4	200
Clay Crucibles, 20 gm.	200
Clay Crucibles, Battersea "K"	100
Fire Clay, the best	lbs. 2000
Charcoal, powdered	bbls. 15
" granulated	" 25
Best Lard	" 2
Acid, Sulphuric Com. (66° Be.)	tons 5

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Downer - 2

Acid, Nitric Com. (38° Be.), free from chlorine - - - -	Tons	20
" Hydrochloric Com. (22° Be.) - - - - -	"	40
Bone Ash - - - - -	bbls.	3
Saltpetre - - - - -	"	8
Soda Ash - - - - -	"	15
Dust Brushes - - - - -		35
Borax Glass, ground - - - - -	bbls.	10
Sand, common - - - - -	"	10
Cryolite, Greenland - - - - -	"	3
Gelatin, pure - - - - -	lbs.	150
Ammonium Chloride, Com. - - - - -	"	200
Ferrous Sulphate of Iron (Green Vitriol) - - - - -	bbls.	50
* Rubber Gauntlets, best grade white flexible, sizes, 9, 9 ²	prs.	100
* " " " " black " 11, 13	"	50
* Buckskin gloves, the best, sizes 9 & 9-1/2	"	300
* " Mitts - - - - -	"	100
Plain white 1/2 gallon china Pitchers - - - - -		25
Pitchers, 4 gal. Earthenware, side handles - - - - -		15
* Asbestos Mitts - - - - -		150
" Cement - - - - -	lbs.	50
* Carpet Mitts - - - - -		1000
Quicksilver - - - - -	lbs.	300
Brass Screen, 30, 40, 60 or 80 mesh - - - - -	sq-ft.	100
Acids, C.P., Nitric, Spec.gr. 1.42 - - - - -	lbs.	100
" " Hydrochloric, sp.gr. 1.20 - - - - -	"	75
" " Sulphuric, " 1.84 - - - - -	"	45

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Downer - 3

Acids, C.P., Acetic	-----	lbs.	20
C.P. Ammonia	-----	"	100
Com. "	-----	"	500
Rubber stoppers, assorted sizes	-----	"	25
Rubber Hose, best quality, light walls, 1/8" to 1/2" dia.	ft.		100
" " " " heavy " 1/4" to 1"	" "		200
Cyanide Pot.	-----	lbs.	20
* Cheese Cloth	-----	-bolts	20
* Muslin, bleached	-----	"	5
Litharge, C.P.	-----	lbs.	25
Silica, powdered	-----	"	300
Salt, common	-----	"	50
" rock <i>crushed</i>	-----	"	4000
* Towelling	-----	-yds.	100
Lead, granulated, free from silver	-----	-lbs.	25
Zinc, slabs	-----	-tons	3
* Unbleached sheeting, 10/4 wide	-----	-bolts	12
Iron turnings	-----	-tons	2
Fire brick, best	-----		7000
" " splits, best	-----		500
Fire brick pedestals for #80 Crucibles	-----		300
Magnesite, powdered	-----	lbs.	200
"00" Twine	-----	"	300
Hydrogen Peroxide	-----	bottles	12
Sodium, metal	-----	lbs.	5
Long-handle floor brushes	-----		15

Downer -- 4

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

* Double-end Brass Brushes - - - - - 50
Arch tile (fire brick) #2937 Arch tile, rights - - - - - 50
" " 2938 " " lefts - - - - - 50
" " 2934 Hood " tops - - - - - 40
" " 2935 " " rights - - - - - 40
" " 2936 " " lefts - - - - - 40
Fire clay Furnace Slides, quarters - - - - - 1000
Oxalic Acid, Com. - - - - - lbs. 25
" " C.P. - - - - - " 10
China Soup Plates, 12" - - - - - 40
Flat bastard files, 14" - - - - - doz. 3
* Aprons - - - - - -200
* Sleeves - - - - - prs. 200

* Samples to accompany all starred articles.

Respectfully,

Joseph W. Wilson
Melter and Refiner.

M I N T

Denver, Colo.

Melter and Refiner's

January, 1907.

Farnum St. John	1	1	30	
E.P. Schell		1		
X.T. Stoddard	3		30	
"	1			Without pay
S.R. Whitaker			30	
C.W. Dakin	1			
G.N. Spencer	2			
Geo. Borstadt, Jr.		3		
G.B. Gray	3			
"				
O.L. Adams	4	3	96	Without pay
Denver Chaffee	3	2		
Michael Howard	1			
H.R. Whitehead	1			
R.C. Morrison				
B.P. Wirth			5	
W.S. O'Brian			26	
	1			

M I N T

Denver

Melter and Refiner's

February,

R.G.Arnold	1	2	
H.D.Bartlett			30
Geo.Borstadt, Jr.		4	30
J.R.Boyle		1	
G.B.Gray	1		
Michael Howard	3		
J.F.Pughe		2	30
E.S.Smith		1	
Spencer, G.N.		3	
Farnum St.John		6	
E.H.Taggart	7		
S.R.Whitaker		3	
H.R.Whitehead			30

M I N T

Denver

Melter and Refiner's

March, 1907

O.L.Adams	1	3	
H.D.Bartlett	1		
Geo.Borstadt,Jr		2	30
R.C.Morrison		1	
J.F.Pughe			45
E.P.Schell		1	
E.S.Smith	9	3	30
G.N.Spencer		7	
F.St.John		4	
B.H.Taggart			30

M I N T

Denver

Melter and Refiner's

April, 1907

O.L.Adams	7		
H.D.Bartlett	1	3	
Geo.Borstadt, Jr.	2		30
J.R.Boyle	1		
Chaffee, Denver	6		30
J.H.Crary	6		
C.W.Dakin	2		
G.B.Gray	6		
M.Howard	1		
R.C.Morrison	6		
W.S.O'Brian	1		
J.F.Pughe		1	
M.J.Quirk	2	3	
E.P.Schell		6	
B.G.Shields	1		30
G.N.Spencer	7		30
F.St.John		1	
X.T.Stoddard	4		
S.R.Whitaker	1	2	30
H.H.Winn	1		
B.P.Wirth	3	1	30

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

May 3, 1907.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

In accordance with your request of the 2d inst., I have the honor to present the following requisition for blank books and forms for use by this department during the next ten months:

2	Form No. 184	Record of Silver Ingot Melting
6	" "	81-C Computing Books
100	" "	373 Storeroom Order
100	" "	537-E Requisition for Labor and Materials
200	" "	82-E Leave of Absence
100	" "	546 Report of Attendance and Absence
2 Doz.	Pads Form No. 1765,	Calculating Paper
2	" " " "	1766 " "
2	" " " "	1767 " "

Respectfully,

John Wilson
Melter and Refiner.

U. S. MINT SERVICE
Form No. 219
Ed. Feb. 1-06-60, -8 x 10 1/4

MELTERS AND REFINERS OF BULLION BALANCES.

Mint of the United States at DENVER

APRIL

1907.

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the

GOLD.

Received **Apr. 29, Redelivery by**
Balance Supt. at Set'mt.
19
Balance
Contained in Gold Deposits
Contained in Silver Deposits
Contained in Condensed Coin
Clippings, blanks, etc.
Bullion from Commission
Coiner's Settlement Bars

STANDARD OUNCES.			
870	448	623	
42	500	265	
3	589	927	
5	820	270	
8	868	250	
2	507	550	
	345	782	
934	080	665	

Delivered
Ingots
Bars, Fine
Bars, Standard
Bars, Unparted
Bars
Sweeps
Balance **APRIL 30, 1907**
19

STANDARD OUNCES.			
934	080	665	
934	080	665	

SILVER.

Received **Redelivery by Supt. at**
Settlement
19
Balance
Contained in Gold Deposits
Contained in Silver Deposits
Contained in **Fine Bars**
Clippings, blanks, etc.
Condensed Coin
Coiner's Settlement Bars

STANDARD OUNCES.			
819	642	51	
6	501	25	
6	675	52	
950	878	40	
195	814	01	
85	140	76	
	628	18	
2	063	280	43

Delivered
Ingots
Bars, Fine
Bars, Standard
Bars, Unparted
Bars
Sweeps
Balance **APRIL 30, 1907**
19

STANDARD OUNCES.			
646	537	60	
1	416	742	82
2	063	280	43

CORRECT:
Frank W. Brown
Superintendent.

May 3 1907.

James M. Brown
Melter and Refiner.

INGOT MELTING ROOM.

1. Amount of bullion melted:

Standard amount

a. Gold. (one re-melt) 8,880.37
b. Silver 1,138,054.37

Total 1,146,934.74

2. Amount of good ingots made:

a. Half eagles 8,053.13
b. Mexican 50 Centavos 1,197,508.30

Total 1,122,561.33

3. Cost of Ingots:

Gold : Silver :

1000

	Total	Per oz.	Total	Per oz.	Total	Per oz.
a. Labor	4.49		1342.21	0012119	1342.21	0012119
b. M. & R. Gen.	.69		207.64	0001874	207.64	0001874
c. Mitts, gloves	.15		45.30	0003409	45.30	0003408
d. Crucibles	.38		116.30	0001050	116.30	0001046
e. Sweeps Cellar	.38		84.02	0000756	84.30	0000757
f. Incidentals	.66		198.70	0001794	198.56	0001791
g. Fuel	.68		205.12	0001852	205.80	0001846
h. Power	.20		62.21	0000561	62.41	0000560
i. Light	.08		26.21	0000257	26.22	0000257
j. Repairs	.14		42.71	0000365	42.85	0000365
k. Set'm't expense	.70		210.40	0001699	211.10	0001697
l. Vacation, sick lv. & holidays	.31		93.45	0000844	93.60	0000843
Totals	8.76	0017336	2634.01	0033735	2642.77	0033732
m. Alloy copper	0.00		2521.49	0032767	2521.49	0032763
Totals, in- cluding copper	8.76	0017336	5155.50	0046502	5164.26	0046417

4. New Equipment

124.15

Total Expense

5288.41

5. a. Av. cost per oz. of ingots, Jan. to Apl. excluding copper

0025416

0025075

0025793

b. Same, including copper

0035106

0046611

0041772

6. a. Per cent good ingots made to amt. of bullion melted, gold, 30.42 silver, 25.15

7. Cost distributed to denominations:

a. Half Eagles 8.76
b. Mexican 50 Centavos 5155.50

Total \$5164.26

REFINERY.

1. To product. Operations completed only of clean-up for settlement.

2. Costs:

a. Labor.	Settlement clean-up expense	341.83
"	Vacation, sick leave & holidays	126.67
"	Repairs in Refinery	283.00
b. Crucibles, covers & Rings	- - - - -	29.70
c. Incidentals	- - - - -	23.70
d. Mitts, gloves & aprons	- - - - -	4.50
e. Sweeps Cellar	- - - - -	180.00
f. M. & R. General	- - - - -	208.33
g. Fuel	- - - - -	58.50
h. Power	- - - - -	20.00
i. Repairs	- - - - -	44.50
j. Light	- - - - -	15.00
Total		1235.73

3. New Equipment - - - - - 46.65

Total Expense - - - \$1282.38

SWEEPS CELLAR.

1. Product: a. Sweeps, avoird. lbs., 20,222.
b. Gold, standard ounces, 301.889
c. Silver " " 519.99

2. Costs: a. Labor 150.78
b. Power 30.00
c. Repairs 11.25
d. Light 35.00
e. Incidentals 37.27
Total 264.30

3. New Equipment 2.50

Total Expense \$266.80

4. Tailings: a. Amount, avoird. lbs., 20,222.
b. Contained gold, standard ounces, 242.869
c. " silver " " 611.30

5. Percentage of extraction: a. Gold, 55
b. Silver 54

6. Departments charged as follows:

a. Ingot Melting room \$ 84.30
b. Refinery 180.00

Respectfully submitted, May 8, 1907,

Joe Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT

May 31, 1907.

Hon. Frank M. Downer,

Superintendent U. S. Mint, Denver.

Sir:

I have the honor of calling your attention to the compensation of the melters in this department. On December 16th, 1905, at which time the Deposit Melting room was under the supervision of the Melter and Refiner, I wrote you as follows:

Sir:-

I have the honor to report that the following Melters in the Deposit Melting room, viz:

Chas. W. Dakin, appointed April 18, 1905,

A. B. McElroy, promoted June 1, 1905, and

Wm. M. Bush " July 11, 1905,

have all progressed favorably and are now good and competent workmen.

Therefore, on account of this assiduity and success, I recommend that they, and each of them, be advanced in salary to the regular melters wages, to wit: four dollars and fifty cents (\$4.50) per day, from and after January 1st, 1906.

And on the same day I also recommended an increase in the compensation of the foreman of the Deposit Melting room to \$5.50 per day; all of the said recommendations were made to conform to the scale of wages obtaining in the mint at San Francisco for like services. You approved my recommendations and the Honorable Director of the Mint accepted your approval and authorized the payment of the wages as recommended.

There was no express statement that the foregoing fixed the standard of wages for melters in this institution, but I obtained the impression therefrom, that, during the first six months of

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Downer - 2

service, the probationary period, the wages would be \$4.00 per day and thereafter, if the employee made good, that upon proper recommendation he would be advanced to \$4.50 per day.

Conditions have changed materially in the Deposit Melting room since that time, and on account of the decrease of work in that department, on March 1st, 1906, I transferred C. W. Dakin to the Refinery Melting room, and in March of the present year, at your request, I accepted a transfer of W. M. Bush to the Ingot Melting room.

The names and compensations of the melters at present employed in this department are as follows:

Ingot Melting room:	M. J. Quirk, foreman,	per day,	\$5.00
	R. C. Morrison, melter	"	4.00
	Denver Chaffee, "	"	4.00
	W. M. Bush, "	"	4.50
Refinery Melting room:	J. R. Boyle, foreman	"	5.00
	C. W. Dakin, melter	"	4.50
	X. T. Stoddard, "	"	4.00

These inequalities in compensation are certainly unjust, because there is no difference in the work performed or the hours employed. In fact, the men work side by side, some at \$4.00 and others at \$4.50 per day; and, in the case of R. C. Morrison, in the absence of the foreman, he performs his duties, and yet receives only \$4.00 while Bush, working under him (during such absence of the foreman,

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Downer - 3

receives \$4.50 per day.

These men have all made good in every way, they are loyal and competent melters, and take pride in doing their work and doing it well. Therefore, in the interest of fairness, and believing it right and just, I do most earnestly recommend and request that the pay of R. C. Morrison, Denver Chaffee, and X. T. Stoddard be increased from \$4.00 to \$4.50 per day.

Sincerely hoping the foregoing may receive your unqualified approval, I remain,

Very respectfully,

Joseph Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

May 31, 1907.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

I have the honor to request that you procure for the Melter and Refiner's Department one calculating machine, "The Millionaire," for making calculations pertaining to Refinery work, which has grown to such an extent that it is extremely difficult and sometimes impossible to handle promptly with our small clerical force.

Respectfully,

Joseph Wilson
Melter and Refiner.

MELTERS AND REFINERS OF BULLION BALANCES.

Minist of the United States at DENVER

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of May, 1907.

GOLD

STANDARD OUNCES.				STANDARD OUNCES.			
Received				May 1, 1907			
Balance				934	080	665	
Contained in Gold Deposits				53	314	034	
Contained in Silver Deposits				3	574	428	
Contained in							
Clippings, blanks, etc.							
				990	969	137	
Delivered							
Ingots							
Bars, Fine							
Bars, Standard							
Bars, Unparted							
Bars							
Sweeps							
Error in receipt #70, Coiner's							
Settlement Bars							
Balance May 31, 1907				19			
				990	969	125	002
				990	969	137	

SILVER

[illegible]

1687

June 1 1907.

Superintendent.

Heller und Krieger.

Subsidiary

CORRECT

June 1 1907

James Wilson
Melter and Refiner

3 AGT 832 13

Balance May 31, 1907

3 AGT 832 13

Con'd coin

208 346 32

Seeds

370 112 32

Bars

252 238 27

Bars Unpacked

2 233 20

Bars Standard

2 221 22

Bars Fine

Ingot (Mexican 20-Centavo)

1 202 478 21

Received

May 1, 1907

STANDARD OUNCES

STANDARD OUNCES

SILVER

330 333 132

Balance May 31, 1907

330 333 132

Settlement Bars

Error in receipt #20, Coiner's

Sweeps

Bars

Bars Unpacked

Bars Standard

Bars Fine

Ingot

Delivered

STANDARD OUNCES

STANDARD OUNCES

GOLD

Superintendent of the Mint by him during the month of May

1907

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the

Mint of the United States at DENVER

MELTERS AND REFINERS OF BULLION BALANCES

Est. Rep. 3-02-200-8 x 1004
Form No. 310
U. S. Mint Service

M I N T

Denver, Colorado

Melter and Refiner's

of May, 1907

C. L. Adams	1		Leave
H. D. Bartlett		30	"
Geo. Borstadt	1		"
W. M. Bush		30	"
Denver Chaffee	1		"
R. C. Morrison		30	"
J. F. Pugh	1		"
E. P. Schell	2		"
E. S. Smith	1		"
G. N. Spencer	2	2	"
Farnum St. John	1	6	"
X. T. Stoddard	1		Without pay
"	1	15	Leave
S. R. Whitaker	1	1	"
Whitehead, H. R.		1	"
H. H. Winn	6	2	"
B. P. Wirth		1	"
"		2	Sick

INGOT MELTING ROOM.

1. Amount of bullion melted:	Standard ounces
a. Gold (4 Commission melts--2 remelted and 1 condemned)	28,396.62
b. Silver	1731,265.89
Total	1759,662.51
2. Amount of good ingots made:	
a. Half eagles	15,413.74
b. Mexican 50-Centavos	1666,105.35
Total	1681,519.09

3. Cost of Ingots:	Gold		Silver		Total	
	Total	Per oz.	Total	Per oz.	Total	Per oz.
a. Labor	35.32		2172.05	0013036	2207.37	0013127
b. M. & R. Gen'l	6.67		410.00	0002460	416.67	0002477
c. Mitts, gloves	.76		46.99	0000282	47.75	0000284
d. Crucibles	1.77		108.63	0000652	110.40	0000656
e. Incidentals	3.18		195.26	0001171	198.44	0001180
f. Fuel	4.47		274.83	0001649	279.30	0001661
g. Power	.78		48.20	0000289	48.98	0000291
h. Light	.70		42.99	0000258	43.69	0000259
i. Repairs	.87		53.28	0000319	54.15	0000322
j. Vacation, sick leave & holidays	.98		60.32	0000362	61.30	0000364
Totals	55.50	0036008	3412.55	0020482	3468.05	0020624
k. Alloy Copper	0.00		3885.86	0023323	3885.86	0023109
Totals including Copper	55.50	0036008	7298.41	0043805	7353.91	0043733
4. New Equipment					42.00	
Total Expense					7395.91	

5. Average cost per ounce of ingots for five months:	Gold	Silver	Total
a. Excluding copper	.0025549	.0023280	.0023890
b. Including "	.0035118	.0045209	.0042495
6. a. Per cent. of good ingots made to amt. bullion melted, Gold	.5428		
b. " " " " " " " " Silver	.9623		

7. Cost distributed to denominations:	
a. Half Eagles	\$ 55.50
b. Mexican 50-Centavos	7298.41
Total	\$7353.91

REFINERY.

The Refinery was closed down all month, and the expense of new equipment and its installation was \$513.00

SWEEPS CELLAR.

The Sweeps Cellar was closed down the entire month.

Respectfully submitted June 6th, 1907.

Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINERS DEPARTMENT

June 10, 1907.

Hon. Frank M. Downer,
Supt. U. S. Mint,
Denver.

Sir:

I have the honor of complying with your request of the 7th inst., relating to the inquiries contained in the communication of Colonel C. M. Porter, Master of the English Mint at Calcutta, India, to the Honorable Director of the United States Mint, concerning the ^{Elspass} wet-grinding mill, by stating the following facts:

We have complete and exact data of the operations of our Sweeps Cellar for the six months ending March 31, 1907, and I will confine my statements of results to those months: so it will be well to remember that the figures presented, covering actual operations, are those for just one-half of a year.

1. The sweeps consisted of worn-out graphite crucibles, slag from "sweats" and fire-brick from inside of melting furnaces; the amount treated was 63,044 avoirdupois pounds.
2. The amount of bullion recovered was 982.31 ounces of fine gold, and 2288.47 ounces of fine silver; being 82-1/2 per cent. of all gold values and 58-1/2 per cent. of all silver values. The tailings from the mill were then sold to the smelters, and in that way we recovered the balance of the values. We hope and believe that eventually we will recover to exceed 95 per cent. of all values, by the addition of further appliances with which we are

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Downer - 3

now experimenting.

3. The cost of recovering the aforesaid bullion (being the total expenses of the sweeps cellar, which included labor, supplies, power, light, and everything else) was \$1173.60.

4. The amount of mercury on hand October 1, 1906, and purchased thereafter prior to March 31, 1907, was 225 lbs., and the amount on hand March 31 was 145 lbs., showing a final loss of 80 lbs. in the treatment of about 31-1/2 tons of sweeps. Of course the amount actually used was much greater than these figures indicate, because the mercury recovered in retorting the amalgam was used over and over again.

5. We purchased our mill in the spring of 1905, paying therefor the sum of \$4395.00, which price included the amalgamator. The mill was built specially for our use, and differs in several details from the standard mill; the changes being necessary, in our opinion, to better adapt it to mint requirements. The most important change was the "closed" die space, which I will explain: The die space, or bed on which the roller presses in the standard mill has a channel (about 1-1/4 inches wide) cut into the bed around the outer edge, which is filled with wood or possibly cement, so that it will give slightly under heavy pressure and thus prevent the outer edge of the roller from wearing faster than the inner edge; this faster wearing on the outer edge is supposed to be caused by the centrifugal action of the revolving bed forcing the material (frequently hard quartz) to the outside, so that the

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT.

Downer - 3

outer edge of the roller would have more work to do than the inner edge. We required the "closed" die space, thus doing away with the channel, because the greater part of the material we crush is graphite (crucibles), and its comparative softness eliminates the question of excessive wear on the outer edge; and, further, it takes considerable time to clean out the channel and extract the gold from its contents, as well as to again refill or pack it for further grinding.

Another necessary change was doing away with the automatic top feed, which required a preliminary dry crushing of the material, and that was one of the things we particularly desired to avoid, because the dry graphite dust is very objectionable, as it permeates everywhere, causing not only discomfort but damage as well. We use an ordinary chute on the side, hammer breaking the material and shoveling it into the mill as necessary.

We have used 30, 40, 60, and 80 mesh brass screen in our operations with the mill; at present we are using 40 mesh and getting good results, better, we believe, than with any other size.

The crushed material passes from the discharge casing into a "Pierce Gold Separator and Amalgamator," (41 riffles), and from thence into the settling tanks. We use two settling tanks, each 18 feet long, 5 feet wide, and 18 inches deep; they are placed tandem, thus giving us 36 lineal feet of settling tankage; the overflow from the end of the second tank being practically clear water.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Downer - 4

We have been experimenting recently with a small copper-plate (3 feet by 10 feet) below the amalgamator, that is, between the latter and the first settling tank; we are very much pleased with the results, and have almost concluded to install a regular plate of 5 feet by 18 feet, as we thereby can recover some very fine gold that passes the amalgamator.

In close proximity to the settling tanks we have a steam drier of our own design, size 5 feet by 12 feet, onto which we shovel the tailings from the settling tanks, where they are dried, then sampled and sacked for shipment to smelter.

The capacity of the mill is much greater than indicated by our work; on some kinds of ore it would reach one to one and a half tons per hour; but the graphite must be handled slowly to get the best results in extraction. To illustrate: In December last, we did not have a large amount of material to treat, and our extraction was 96-1/2 per cent. of the gold values and 86 per cent. of the silver values; but in February following we treated about two and one-half times as much material as we did in December, and our extraction fell to 74 per cent. of the gold values and 54 per cent of the silver values. In my opinion, the capacity of the mill on mint sweeps should not be pushed beyond one ton in four to six hours.

Respectfully submitted, .

Forw. Milson
Melter and Refiner.

M I N T

Denver, Colorado

Melter & Refiner's

of June, 1915

Adam, C.L.	1	4	30	Leave
Boyle, J.R.		3		"
Bush, W.W.		1	30	"
Chaffee, D.		1	30	"
Crosby, J.E.		3	45	"
Gray, G.T.	1			Sick
Howard, M.		1	30	Leave
Morrison, R.C.		2	30	"
Pughe, J.F.		2	30	"
Quirk, M.J.			45	"
Schoell, E.P.		2	30	"
Smith, E.S.		1	30	"
Spencer, G.N.	2			Sick
"		3	45	Leave
St. John, F.	3	1		"
Stoddard, X.T.		1	30	"
Taggart, B.H.	2	1	30	"
Whitaker, S.R.			45	"
Whitehead, H.R.		1	30	"
Winn, H.H.		1		"
Wirth, B.P.		4		"

MELTERS AND REFINERS OF BULLION BALANCES.

Mint of the United States at DENVER

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of June, 1907.

GOLD.

Received	June 1 19	STANDARD OUNCES.	Delivered	June 29, 1907	STANDARD OUNCES.
Balance		990	Ingots		15
Contained in Gold Deposits		50	Bars, Fine		413
Contained in Silver Deposits		3	Bars, Standard		570
Contained in sweeps bar		15	Bars, Unparted		
Clippings, blanks, etc.			Bars		
			Sweeps		
		1 044	Balance	19	1 029 548 388
					1 044 961 958

SILVER.

Received	June 1 19	STANDARD OUNCES.	Delivered	June 29, 1907	STANDARD OUNCES.
Balance		1 257	Ingots		1 660
Contained in Gold Deposits		6	Bars, Fine		203
Contained in Silver Deposits		7	Bars, Standard		69
Contained in sweeps bar		489	Bars, Unparted		00
Con'd coin		435	Bars		
Special silver		553	Sweeps		
		2 198	Balance	19	533 692 62
					2 198 565 31

CORRECT:

July 1

1907.

Journal

June, 1907, Report of the M. & R. Department of the U.S. Mint, Denver.

INGOT MELTING ROOM.

1.	Amount of bullion melted: all silver,	1,709,837.92	std. ozs.
2.	Amount of good ingots made, Mexican		
	50-Centavos - - - - -	1,665,010.75	"
3.	Cost of Ingots:	Total	Per ounce
	a. Labor - - - - -	1828.30	.00109806
	b. M. & R. Gen. - - - - -	416.67	.00025025
	c. Mitts & Gloves - - - - -	47.20	.00002834
	d. Crucibles - - - - -	96.60	.00005801
	e. Incidentals - - - - -	154.25	.00009264
	f. Fuel - - - - -	241.15	.00014483
	g. Power - - - - -	42.06	.00002526
	h. Light - - - - -	34.28	.00002058
	i. Repairs - - - - -	53.94	.00003239
	j. Vacation, sick leave and holidays - - - - -	52.62	.00003160
	Totals	2967.07	.00178201
	k. Alloy Copper - - - - -	2435.81	.00146293
	Totals including copper	5402.88	.00324495
4.	New Equipment - - - - -	16.50	
	Total Expense	5419.38	
5.	Average Cost per ounce of ingots for six months, excluding copper - - - - -	Gold .00255497	Silver .00214622
	Ditto, including copper - - - - -	.00351181	.00409599
6.	Per cent. good ingots made to amount bullion melted, Silver,	.97378	
7.	No distribution of costs--all Mexican 50-Centavos.		

REFINERY

Not operating. Cost of New Equipment and Installation, \$1238.99

SWEEPS CELLAR

Not operating.

Respectfully submitted, July 8, 1907.

Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

The Melter and Refiner received from the Superintendent during the fiscal year ended June 30, 1907:

Gold Account	Standard ounces	Standard ounces
In bullion		2,968,301.148
In surplus recovered, and delivered at settlement, March 31, 1907		382.370
Returned in Ingots	1,938,648.360	
" " Sweeps	486.770	
On hand	1,029,548.388	
	2,968,683.518	2,968,683.518

Silver Account

In bullion ,		8,652,097.53
In surplus recovered, and delivered at settlement, March 31, 1907		11,589.97
Returned in Ingots	8,122,912.41	
" " Sweeps	2,413.47	
" " Fine bars	4,669.00	
On hand	533,692.62	
	8,663,687.50	8,663,687.50

The surplus, as well as the additional amount necessary to cover actual operating losses, was recovered from unreported fractions of assays, from fractional gains in weight of deposits, and from the difference between standard and actual fineness of ingots delivered. The silver surplus includes the "1/99th" contained in unparted deposits, amounting to 4,216.68 standard ounces.

MINT OF THE UNITED STATES AT DENVER,

2

MELTER AND REFINER'S DEPARTMENT,

The following melts were made:

Metal	Deposits	Anodes	Cath.	Mint Bars	Set. Bars	Copper	Special	Ingots	Totals
Gold	4616	415	5	302	30		2	323	5693
Silver	134	135	10	20	68		3	2287	2657
G. & S.						74	509		583
Totals	4750	550	15	322	98	74	514	2610	8933

Ingot melts condemned: Gold, 3; Silver, 9.

1056 sacks of Sweeps were gathered during the year, containing by Mint assay, 486.77 standard ozs. gold, and 2413.47 standard ozs. silver.

Refinery operations were confined to a period of six months only, and were as follows:

Gold Account		Standard ounces	Standard ounces
Delivered to the Refinery bullion containing			1,708,189.456
Surplus recovered, and returned at			
Settlement, March 31, 1907 . . .			271.210
Returned in fine bars	1,603,391.451		
" " settlement bars	104,788.878		
" " Sweeps	280.337		
	1,708,460.666		1,708,460.666
Silver account			
Delivered to the Refinery bullion containing			340,289.95
Surplus recovered, and returned at			
Settlement, March 31, 1907			4,848.98
Returned in fine bars	26,140.92		
" " " " for make-up	198,805.83		
" " settlement bars	118,681.17		
" " Sweeps	1,571.01		
	345,138.93		345,138.93

Average fineness of fine gold produced, .99976+; fine silver, .9994-

Receipts: Charges collected for parting	\$24,823.81	
Surplus bullion recovered	7,955.14	\$32,778.95

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Statement of Available Silver on Hand, Close of business, July 20, 1907.

	Std. Ounces	
Fine Bars	240,126.02	
Quarter Dollar Ingots	182,209.30	
Clippings	<u>26,342.71</u>	448,678.03
Contained in Deposits		<u>294,697.70</u>
TOTAL AMOUNT ON HAND		743,375.73

Respectfully submitted,

Jack Heston
Assistant Melter & Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Statement of Available Silver on hand, close of business, July 27, 1907.

	Standard Ounces	
Fine Bars	351,982.85	
Quarter dollar ingots	182,209.30	
Clippings	<u>26,342.71</u>	560,534.86
		<u>297,256.99</u>
Contained in Deposits		857,791.85
TOTAL AMOUNT ON HAND		

Respectfully submitted,

Joe W. Milson
~~Assistant~~ Melter and Refiner.

U. S. MINT SERVICE.
Form No. 219.
Ed. Feb. 3-45-500.—8 x 10½.

MELTERS AND REFINERS OF BULLION BALANCES.

Print of the United States at D E N V E R

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the Month of July, 1907.

GOLD.

[illegible]

SHANGHAI

[illegible]

SUBJECT:

1907

1907

Wm. B. Brown

St. Louis, Mo.

John H. Johnson
1874-1931

مجلسه اول

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Statement of Available Silver on Hand, close of business, August 3, 1907

	Standard Ounces	
Fine Bars	304,669.69	
U. S. Ingots	101,436.25	
Clippings	<u>81,889.18</u>	487,995.12
Contained in Deposits		<u>300,500.23</u>
TOTAL AMOUNT ON HAND		788,495.35

Respectfully submitted,

J. H. Hennrich

Acting Melter and Refiner.

Denver.

Walter & Refiner's

July, 1907

Adams, C.E.	14			Leave
Bartholomew, H.D.	15	4		"
Bowling, C.E.	13	4		"
Bush, W.M.	14			"
Forstadi, G.	16	4		"
Groffee, D.	14	2		"
Gross, J.H.	13	4		"
Hahn, C.W.	16	4		"
Gray, G.E.	16	4		"
Howard, M.	14			"
Morrison, R.C.	14	1	30	"
"	1	1	30	Sick
Pughe, J.F.	14			Leave
Quirk, M.J.	14			"
Schell, E.P.	14	1		"
Shielos, B.G.	16	4		"
Smith, E.S.	14			"
Spencer, G.H.	13	4		"
St. John, F.	5	5		"
Stoddard, K.T.	13	4		"
Taggart, B.H.	18	2		"
Whitaker, E.R.	16	4		"
Whitehead, H.R.	16.			"
Winn, H.E.	14	4		"
Wirth, E.P.	13	4		"
Ketrach Jm.	6			"

INGOT MELTING ROOM.

Standard ozs.

1. Amt. bullion melted, all silver		<u>511,895.58</u>
2. Amt. good ingots made: a. Mexican 50centavos		311,832.80
b. Quarter dollars		<u>173,847.15</u>
	Total	<u>485,679.95</u>
3. Cost of Ingots:	Total	Per ounce
a. Labor	930.86	.00191661
b. M. & R. Gen'l	378.33	.00077896
c. Mitts & gloves	17.25	.00003551
d. Crucibles	32.20	.00006629
e. Incidentals	35.13	.00007233
f. Fuel	84.70	.00017439
g. Power	17.55	.00003613
h. Light	35.41	.00007290
i. Repairs	26.35	.00005425
j. Vacation, sick-leave & holidays	<u>656.30</u>	<u>.00135130</u>
Totals	2214.08	.00455867
k. Alloy Copper	<u>200.84</u>	<u>.00041352</u>
Totals including Copper	2414.92	.00497224
4. New Equipment	<u>68.30</u>	
Total Expense	<u>2483.22</u>	
5. Per cent. good ingots made to amt. silver bullion melted,		.9487
6. Distribution of costs: a. Mexican 50-Centavos	1585.84	
b. Quarter dollars	<u>829.08</u>	<u>2414.92</u>

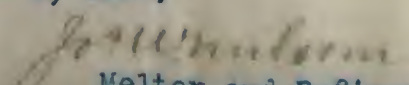
REFINERY (Not operating)

a. New Equipment	149.79	
b. Sick-leave, vacation & holidays	<u>726.25</u>	<u>876.04</u>

SWEEPS CELLAR (Not operating)

a. New Equipment	5.52	
b. Repairs	<u>4.50</u>	<u>10.02</u>

Respectfully submitted, August 9, 1907,


 Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Statement of Available Silver on hand, close of business, August 10,
1907.

	Standard ounces	
Fine Bars	304,668.69	
Ingots	61,427.05	
Clippings	<u>94,813.38</u>	460,910.42
Contained in Deposits		<u>306,422.00</u>
TOTAL AMOUNT ON HAND		767,332.42

Respectfully submitted,

Joseph Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

August 14, 1907.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver, Colo.

Sir:

I have the honor of recommending the promotion of Helper George B. Gray, to the position of Assistant Melter in the Refinery Melting room, at a compensation of \$4.00 per day; said promotion to be effective as soon as it is regularly approved.

We have recently suffered a loss of one of our best melters in this room, by the transfer of Jacob R. Boyle to the Philadelphia mint, and this promotion will enable us to get along with our work fairly well, for a time at least.

I also request authority to appoint an additional helper to fill the position made vacant by the above promotion.

Very respectfully,

Joe Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

August 14, 1907.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver, Colo.

Sir:

I have the honor of recommending the promotion of Assistant Melter, Richard C. Morrison to the position of Foreman of the Ingot Melting room, to fill the vacancy that will occur in that position at the end of this month, by the transfer of Michael J. Quirk to the U. S. Mint at Philadelphia.

Mr. Morrison is a careful workman and fully competent to perform the duties that will devolve upon him in the new position, as he has always acted as foreman in the absence of Mr. Quirk. I therefore recommend that he be allowed the regular per diem pertaining to said foremanship, viz., \$5.00 per day, and that he assume the duties of said office upon the day following the retirement of Mr. Quirk.

Very respectfully,

John Morrison
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

August 16th, 1907.

Hon. Frank M. Downer
Supt. U. S. Mint, Denver, Colo.
Dear Sir:

I have the honor of recommending that
the compensation of Helper, E. P. Schell be increased
from \$3.⁵⁰ per day to \$4.⁰⁰.

Mr. Schell in addition to his work as helper in the
Make-up room keeps a record of all supplies
received for this department and personally
attends to checking their receipt.

He is careful and painstaking in his work and
I trust this may meet with your approval.

Very respectfully

Joe W. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Statement of Available Silver on hand, Close of Business, August 7,
1907.

	Standard Ounces	
Fine Bars	152,895.29	
Ingots	244,035.13	
Clippings	<u>18,808.05</u>	415,738.47
Contained in Deposits		<u>314,058.42</u>
TOTAL AMOUNT ON HAND		729,796.89

Respectfully submitted,

John W. Milburn
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

August 24th, 1907.

Statement of available silver on hand at
the close of business this day:

Fine bars 26265.1111

Ingot 195667.08 221932.52

Contained in deposits 318487.02

Total amount on hand 540419.54

Respectfully submitted

J. W. Milson

Melter and Refiner

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

August 31, 1907.

Statement of Available Silver on Hand at close of business this day.

	Standard ounces	
Fine bars	26,265.44	
Ingots	140,998.70	
Clippings	<u>24,068.25</u>	191,332.39
Contained in deposits		<u>328,043.44</u>
TOTAL AMOUNT ON HAND		519,375.83

Respectfully submitted,

J. H. H. H. H.
Assistant Melter and Refiner.

WEIGHTS AND MEASURES OF BULLION BALANCES.

Denial of the United States at

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Deliveries to the Superintendent of the Mint by him during the month of August, 1907.

GOLD.

[illegible]

SILVER

[illegible]

COMPT

Frederick M. Brown
Superintendent.

Superintendent.

September 3

1907.

John De Witt
Morton and Repner.

Molitor und Refiner.

M I N T

D E N V E R

M. & R.

August, 1905

Adams, C.L.	5	4		Leave
Bartlett, H.D.	5	7		"
Borstadt, G.	5	6		"
Boyle, J.R.	3			"
Bush, W.M.	5	4		"
Chaffee, D.	5	4	30	"
"	2	4		Sick
Crary, J.H.	5	4		Leave
Dakin, C.W.	5	4		"
Gray, G.B.	5	4		"
Howard, M.	5	4		"
Morrison, R.C.	6			"
Pughe, J.F.	2	4	30	"
Quirk, M.J.	2	5		"
Schell, E.P.		2	30	"
Shields, B.G.	5	4		"
Spencer, G.N.	2	4		"
St. John, F.	9	4	30	"
Stoddard, X.T.	5	4		"
Taggart, B.H.	5	4		"
Whitaker, S.R.	8	2		"
Whitehead, H.R.	5	4		"
Wirth, E.P.	1	1		"

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

September 7, 1907.

Statement of Available Silver on Hand at close of business this day.

	Standard ounces	
Ingot	95,372.27	
Clippings, Kings, etc.	<u>21,803.27</u>	117,175.54
Contained in Deposits		<u>328,043.44</u>
TOTAL ON HAND		445,218.98

Respectfully submitted,

Joseph Wilson
Melter and Refiner.

August, 1907, report of the Melter and Refiner's Department, of the
U. S. Mint, at Denver.

INGOT MELTING ROOM.

Standard ounces

1. Amount of bullion melted: a. Gold 139,762.25
b. Silver 573,269.75
Total 713,032.00

2. Amount good ingots made: a. Double eagles 133,762.25
b. Half dollars 33,000.00
c. Quarter dollars 520,722.80
Total 687,485.05

3. Cost of Ingots:	Gold		Silver		Total	
	Total	Per oz.	Total	Per oz.	Total	Per oz.
a. Labor	195.15	.00145884	653.01	.00123348	848.16	.00127733
b. M. & R. Gen	46.30	.00034611	162.04	.00029263	208.34	.00020304
c. Mitts, glov.	9.00	.00006727	31.50	.00003688	40.50	.00005290
d. Crucibles	14.87	.00011116	52.05	.00009399	66.92	.00009733
e. Swp. Cellar	65.38	.00048874	226.24	.00041327	291.62	.00042795
f. Incidentals	20.68	.00015452	72.79	.00013073	93.47	.00013527
g. Fuel	33.83	.00025289	118.42	.00021386	152.25	.00022145
h. Power	9.07	.00003730	31.76	.00005733	40.83	.00005938
i. Light	1.63	.00001218	5.69	.00001027	7.32	.00001064
j. Repairs	5.54	.00004141	12.37	.00003436	17.91	.00003328
k. Vacation, s.l. & h.	38.43	.00028728	134.53	.00024225	172.96	.00025157
Totals	439.88	.00328833	1539.60	.00273043	1979.48	.00287926
#. Alloy Cop.	120.76	.00090274	327.79	.00059197	448.55	.00065244
Totals incl. Copper	560.64	.00419107	1867.39	.00337241	2428.03	.00353170

4. a. New Equipment 12.04
b. Clipping silver bars for Gen. dept. 16.25
Total Expense 2456.32

5. Per cent. good ingots made to amt. bullion melted, a. Gold, .9570
b. Silver, .9659

6. Average cost per ounce of ingots for two months:

	Gold	Silver	Total
a. Excluding copper	.00314725	.00354471	.00349597
b. Including copper	.00401126	.00404392	.00404011

7. Cost distributed to denominations:

a. Double eagles	560.64
b. Half dollars	108.35
c. Quarter dollars	1759.14
Total	2428.03

1. Product: a. Gold
b. Silver

Fine ounces

38,945.03

13,868.32

Std. Ounces

37,883.37

15,194.80

229

Totals

47,581.35

52,868.17

2. Costs:

Totals

cts. pr oz.

a. Labor	861.68	.012516
b. Crucibles, covers, & rings	38.00	.00068025
c. Acids	151.81	.00387148
d. Incidentals	49.75	.00094101
e. Hats, gloves, aprons	16.32	.00030869
f. Chemicals	5.00	.00009457
g. Sweeps cellar	0.00	0
h. M. & R. Gen.	208.33	.00394055
i. Fuel	44.10	.00083415
j. Power	110.25	.00208537
k. Repairs	108.25	.00204754
l. Light	30.00	.00056744
m. Vacation, sick lv. & holidays	250.16	.00435347

Totals

1351.62

.03124034

3. a. New Equipment 178.80

b. Clipping silver bars
 for Gen. dept. 17.81

Total Expense 1848.23

4. Crude bullion refined, approx., gross ozs. 60,245.86

5. Cost per crude ounce .02741466

6. " " standard " .03124034

7. " " fine " .03471149

SWEEPS CELLAR

1. Product: a. Sweeps, avoir. lbs. 24,162
b. Gold, std. ozs. 195.598
c. Silver " 1272.590

2. Costs: a. Labor 184.38
b. Power 38.94
c. Repairs 3.00
d. Light 10.00
e. Incid'ls 38.53
f. Vacation
 etc. 17.87

Total 292.72

3. New Equipment 1.50

Total 294.22

4. Tailings: a. Amount avoir. lbs. 24,162
b. Contained gold, std. ozs, 52.527
c. " silver " 435.440

5. Percentage of extraction: a. Gold, .788 Silver, .745

6. Department charged: Ingot Melting room.

Respectfully submitted, Sept. 10, 1907.

J. W. Mulvaney

Melting room

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT

September 11, 1907.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

I have the honor of hereby most earnestly recommending that the salary of Farnum St. John, clerk in my office, be increased from \$1400.00 per year to \$1600.00.

You no doubt remember that when I was considering the filling of this place in the fall of 1905, I was very strongly inclined to the belief that I could not secure a satisfactory appointee from the Civil Service Eligible list, and that I took the matter up with a member of the National Civil Service Commission, who happened to be in Denver at that time, in an effort to have this position excepted, so that I could select someone in every way competent to perform the many and varied duties required. In November, 1905, I presented the matter personally to the then Director of the Mint, Hon. Geo. E. Roberts, and, after a full discussion, he urged me to first try the eligible list, stating that, if I failed there, I might renew my application to make the position an excepted one. Later, the eligible list came to hand, and I discovered that Mr. St. John stood third in a list of, I think, over 700; I was very much pleased, as I had known him for a number of years, and I knew that in him was combined the special attainments I was so anxious to obtain in a con-

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Downer - 2

fidential clerk. Later, with your approval, he was appointed to the position which he has now filled so acceptably for nearly twenty months.

He is a splendid stenographer, a very rapid and accurate typewriter, a first-class accountant and calculator, and a neat and careful bookkeeper. He is so loyal to this institution and always so willing to work overtime, and even on Sundays, (for which he receives no additional pay), that it is a great pleasure for me to place on record my appreciation of his services, with the most earnest recommendation that the increase of salary asked for be granted.

Trusting that your personal knowledge of Mr. St. John's worthiness will assist you in reaching a favorable conclusion in the premises, I remain,

Respectfully yours,

Joseph W. Milson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER DEPARTMENT.

September 21, 1907.

Statement of Available Silver on Hand, close of business this day.

	Standard Ounces	
Fine Silver	4936.00	
Ingots	23557.00	
Clippings	<u>1002.30</u>	29,495.30
Contained in Deposits		<u>287,519.06</u>
Total on Hand		317,014.36

Respectfully submitted,

John W. Mendenhall
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

September 27, 1907.

Statement of Available Silver on Hand, close of business this day.

	Standard ounces
Ingots	47,837.60
Contained in deposits	<u>304,801.71</u>
TOTAL ON HAND	352,639.31

Respectfully submitted,

James H. Wilson
Melter and Refiner.

U. S. MINT SERVICE.
Form No. 219.
Ed. Feb. 3-06-501-8 x 10 1/2.

MELTERS AND REFINERS OF BULLION BALANCES.

Mint of the United States at DENVER

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the September, 1907.

GOLD.

Received	STANDARD OUNCES.			Delivered	STANDARD OUNCE.		
	1	205	460		206	309	120
Balance		50	087	Ingots			
Contained in Gold Deposits		4	605	Bars, Fine			
Contained in Silver Deposits			466	Bars, Standard			
Contained in				Bars, Unparted			
Clippings, blanks, etc.		47	943	Bars		60	081
			177	Sweeps			
Sweeps bar			038				
				Balance			
	1	308	274	Sept. 29	1	101	305
			879		1	308	274
							879

SILVER.

Received	STANDARD OUNCES.			Delivered	STANDARD OUNCE.		
	1	205	375		207	102	20
Balance		8	386	Ingots			
Contained in Gold Deposits		23	207	Bars, Fine			
Contained in Silver Deposits			67	Bars, Standard			
Contained in				Bars, Unparted			
Clippings, blanks, etc.		115	480	Bars		588	34
		20	288	Sweeps			
Sweeps bar			55				
Con'd coin							
sp. Mex.							
coin			18				
coiner's bars		5	525	Balance			
			95	Sept. 29	1	250	657
						690	248
			348				42
			42				

October 1

1907.

Frank M. Brown

Superintendent.

Melter and Refiner

I I H T

Denver

Molter & Refiner's

, September.

Crary, J.H.		1	30	Leave
Dakin, C.W.		1		"
Cray, C.B.		3	30	"
O'Brien, W.S.	2	4		"
Pughe, J.F.		5		"
Schell, E.P.	14			"
"	4	4		Without pay
Shields, B.G.	3			Sick
"		1	30	Leave
Smith, E.S.	2			"
St. John, F.	2	1	30	"
Stoddard, X.T.		1		"
Wirth, E.P.		1		"

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

October 5, 1907.

Statement of Available Silver on hand at close of business this day.

	Standard ounces	
Fine Silver	20,081.78	
Ingots	<u>47,837.60</u>	67,919.38
Contained in Deposits		<u>288,924.11</u>
Total on hand		356,843.49

Respectfully submitted,

J. H. H. H. H.
Melter and Refiner.

September, 1907, report of the M. & R. Department of the U. S. Mint, at
Denver, Colo.

INGOT MELTING ROOM

Standard ounces

1. Amount of bullion melted: a. Gold 277,486.79
b. Silver 260,779.65
Total 538,266.44

2. Amount of good ingots made: a. Double Eagles 242,019.28
b. Dimes 246,592.70
Total 488,611.98

	Gold		Silver		Total	
	Total	Per oz.	Total	Per oz.	Total	Per oz.
a. Labor	337.52	.00139459	337.52	.00136373	675.04	.00138154
b. M. & R. Gen.	104.17	.00043042	104.17	.00042143	208.34	.00042639
c. Mitts, gloves	12.25	.00005061	10.12	.00004103	22.37	.00004578
d. Crucibles	30.12	.00012445	27.60	.00011192	57.72	.00011815
e. Sweeps Cel.	65.11	.00026902	65.11	.00026403	130.22	.00026651
f. Incidentals	25.67	.00010606	30.25	.00012337	55.92	.00011444
g. Fuel	59.50	.00024584	55.30	.00022425	114.80	.00023495
h. Power	17.85	.00007375	17.85	.00007238	35.70	.00007306
i. Light	3.16	.00001305	3.16	.00001311	6.32	.00001293
j. Repairs	42.39	.00017515	42.39	.00017190	84.78	.00017351
k. Sick-leave, vacation, &c	44.64	.00018453	44.65	.00018106	89.29	.00018274
Totals	742.38	.00306744	738.12	.00299327	1480.50	.00303001
l. Alloy cop.	341.70	.00141187	169.27	.00068643	510.97	.00104575
Totals in- cluding Cop.	1084.08	.00447931	907.39	.00367971	1991.47	.00407576

1. New Equipment

Total Expense

5.95

1997.42

3. Per cent. good ingots made to amt. bullion melted. a. Gold, .8721
b. Silver, .9455

4. Average cost per ounce of ingots for three months:

	Gold	Silver	Total
a. Excluding alloy copper	.00309360	.00344050	.00336894
b. Including " "	.00430796	.00327512	.00405043

5. Cost distributed to denominations:

a. Double Eagles 1084.08
b. Dimes 907.39
Total 1991.47

REFINERY

1. Product:		Fine Ozs.	Std. Ozs.
a. Gold		150,456.243	167,173.603
b. Silver		103,635.900	115,151.000
	Totals	254,092.143	282,324.603

2. Costs:	Totals	Cents per ounce
a. Labor	1420.92	.00503293
b. Crucibles, covers, rings	80.60	.00028548
c. Acids	424.68	.00150422
d. Incidentals	141.25	.00050031
e. Mitts, gloves, aprons	73.37	.00025987
f. Chemicals	25.00	.00008855
g. Sweeps cellar	0.00	.00000000
h. M. & R. Genl.	208.33	.00073790
i. Fuel	139.30	.00049340
j. Power	331.87	.00117549
k. Repairs	132.65	.00046984
l. Light	55.00	.00019481
m. Vacation, sick-leave & holidays	170.67	.00060451
	Totals	.01134736
3. New Equipment	79.31	
Total Expense	3282.95	

4. Crude bullion refined, approx.,		349,497.160
5. Cost per crude ounce	.00916642	
6. " " std. "	.01134736	
7. " " fine "	.01260818	

SWEEPS CELLAR

1. Product:	a. Gold, standard ounces	31.470	
	b. Silver "	452.390	
	c. Tailings, avoird. lbs.		5,775

2. Costs:	a. Labor	78.50
	b. Power	8.72
	c. Repairs	.50
	d. Light	20.00
	e. Vacation, etc.	22.50
	Total expense	130.22

3. Tailings:	a. Amount avoird. Lbs.	5,775
	b. Contained gold, std. ozs.	7.539
	c. " silver "	152.940

4. Percentage of extraction:	a. Gold, .8067; Silver, .7473
5. Department charged:	Ingot melting room.

Respectfully submitted, October 9th, 1907,

Joseph W. Winters
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

October 12, 1907.

Statement of Available Silver on hand at close of business this day.

	Standard ounces	
Fine Silver	34,472.16	
Clippings	<u>21,695.85</u>	56,168.01
Contained in deposits		<u>280,376.63</u>
Total on hand		336,544.64

Respectfully submitted,

John W. Bennett
Assistant Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Denver, October 29, 1907.

Statement of Available Silver on Hand at close of business, this day.

	standard ounces	
Silver ingots	28,275.95	
Fine Silver	<u>4,401.38</u>	32,677.33
Contained in Deposits		<u>283,418.98</u>
TOTAL ON HAND	-----	316,096.31

Respectfully submitted,

John H. ...
Acting Melter & Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

October 6, 1907.

Statement of Available Silver on hand at close of business this day:

	Standard ounces
Fine silver	19,616.55
Contained in deposits	<u>268,646.61</u>
Total on hand	288,263.16

Respectfully submitted,

J. W. Wilson
Melter and Refiner.

MELTERS AND REFINERS OF BULLION BALANCES.

Mint of the United States at DENVER

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of October, 1907.

GOLD.

Received	Oct. 1	19	STANDARD OUNCES.				Delivered	Oct. 31, 1907	19	STANDARD OUNCES.			
			1	101	305	678				704	364	420	
Balance				49	502	090	Ingots						
Contained in Gold Deposits				4	879	651	Bars, Fine						
Contained in Silver Deposits							Bars, Standard						
Contained in							Bars, Unparted						
Clippings, blanks, etc.				260	793	290	Bars						
							Sweeps						
							Balance						
			1	416	480	709				712	116	289	
										1	416	480	709

SILVER.

Received	Oct. 1	19	STANDARD OUNCES.				Delivered	Oct. 31, 1907	19	STANDARD OUNCES.			
			352	657	88					117	352	10	
Balance			10	051	10		Ingots						
Contained in Gold Deposits			20	910	38		Bars, Fine						
Contained in Silver Deposits							Bars, Standard						
Contained in							Bars, Unparted						
Clippings, blanks, etc.			39	401	90		Bars						
							Sweeps						
							Balance						
			423	021	26					305	669	16	
										423	021	26	

CORRECT:

Superintendent.

190

Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

November 2, 1907.

Statement of Silver on Hand at close of business this day:

	<u>Standard ounces</u>
Silver ingots	17,647.15
Contained in deposits	<u>271,104.76</u>
TOTAL ON HAND	288,751.91

Respectfully,

Joseph Milcom

Melter and Refiner.

Melter and Refiner's

October, 1907

Adams, C.L.			30	Leave
Crary, J.H.			45	"
Howard, M.	6			"
Pughe, J.F.	2		15	"
Shields, B.G.		1		"
"	4			Sick
Schell, F.P.		2		Without pay
Smith, E.S.	3	2		Leave
"		3		Without pay
Spencer, G.N.		3	30	Leave
Stoddard, X.T.	1			"
St. John, F.	2	1		"
Whitehead, H.R.		3	30	"
Wirth, B.P.		6	30	"
Taggart, B.H.			30	"

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

November 9, 1907.

Statement of Silver on hand at close of business this day:

	----- Standard ounces
Ingots	24,113.65
Fine Silver	7,813.10
Contained in Deposits	<u>268,052.04</u>
Total on hand	299,984.79

Respectfully submitted,

Benjamin
Melter & Refiner.

REFINERY

		Fine ozs.	Standard ozs.
1. Product:	a. Gold	140,102.002	155,869.891
	b. Silver	174,145.113	193,494.576
	Total	<u>314,247.015</u>	<u>349,364.467</u>

2. Costs:	Totals	Cost per oz.
a. Labor	\$1630.03	.00465237
b. Crucibles, covers, rings	75.80	.00021708
c. Acids	542.13	.00155238
d. Incidentals	199.47	.00057137
e. Mitts, gloves, aprons	72.18	.00020672
f. Chemicals	25.00	.00007159
g. Sweeps Cellar	118.45	.00033922
h. M. & R. Gen.	206.33	.00058665
i. Fuel	183.40	.00052515
j. Power	601.55	.00172982
k. Repairs	75.32	.00021571
l. Light	75.00	.00021472
m. Vacation, sick leave & holidays	<u>35.14</u>	<u>.00010084</u>
Totals	3841.86	.01100300

3. New Equipment	<u>274.37</u>
Total Expense	<u>\$4116.23</u>

4. Crude bullion refined, approx. 468,392.340 gross ozs.

5. Cost per crude ounce, .00082022

6. " " standard " .01100300

7. " " fine " .01222556

SWEEPS CELLAR

1. Product: Tailings, avoir. lbs. 4300
Amalgam not retorted.

2. Costs:	a. Labor	\$66.87
	b. Power	6.39
	c. Light	20.00
	d. Repairs	7.13
	e. Incidentals	1.45
	f. Sick leave &c	<u>16.63</u>

Total \$118.45 charged to Refinery

3. New Equipment \$35.31

INGOT MELTING ROOM

1. Amount of bullion melted:	a. Gold	Standard ozs.
	b. Silver	617,824.81
	Total	95,563.40
		<u>713,388.21</u>

2. Amount of good ingots made:	a. Double Eagles	559,864.95
	b. Dimes	93,869.15
	Total	<u>653,734.10</u>

3. Cost of Ingots:

	Gold		Silver		Total	
	Total	Per oz.	Total	Per oz.	Total	Per oz.
a. Labor	723.91	.00129300	137.25	.00146214	861.16	.00131773
b. M. & R. Gen.	166.67	.00029769	41.66	.00044380	208.33	.00031800
c. Mitts, gloves	4.87	.00000869	6.50	.00006924	11.37	.00001777
d. Crucibles	59.40	.00010609	9.20	.00009800	68.60	.00010409
e. Sweeps Cellar	.00	.00	.00	.00	.00	.00
f. Incidentals	42.81	.00007646	11.64	.00012400	54.45	.00008323
g. Fuel	137.20	.00024505	24.15	.00025727	161.35	.00024616
h. Power	36.00	.00006430	8.99	.00009577	44.99	.00006888
i. Light	6.32	.00001128	1.58	.00001683	7.90	.00001200
j. Repairs	34.61	.00006181	8.65	.00009214	43.26	.00006611
k. Sick leave &c	25.29	.00004517	6.32	.00006732	31.61	.00004888

Totals 1237.08 .00220960 255.94 .00272656 1493.02 .00228385

1. Alloy Cop. 557.77 .00099625 108.22 .00115288 665.99 .00101874

Totals incl.

Copper 1794.85 .00320586 364.16 .00387944 2159.01 .00330255

4. New Equipment

32.92

Total Expense

\$2191.93

5. Per cent. of good ingots made to amount of bullion melted:

a. Gold, .906

b. Silver, .982

6. Average cost of ingots, per ounce, for four months:

	Gold	Silver	Total
a. Excluding alloy copper	.00256925	.00339266	.00306146
b. Including " "	.00365270	.00396871	.00384160

7. Cost distributed to denominations:

a. Double Eagles \$1794.85

b. Dimes 364.16

Total

\$2159.01

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

November 16, 1907.

Statement of Silver on Hand at close of business this day:

	Standard ounces	
Ingots	45,069.20	
Fine Silver	<u>235,607.92</u>	280,677.12
Contained in Deposits		<u>273,366.29</u>
Total on hand		554,043.41

Respectfully submitted,

J. W. Williams
Melter and Refiner.

Deive

Melter and Refiner's

Nov., 1902.

Adams, O.L.	✓		2		Le
Arnold, R.G.	✓	1			"
Bartlett, H.D.	✓		1		"
Chaffee, D.	✓		3		"
Dakin, C.W.	✓	1	3	30	"
Dardis, W.W.	✓		1		"
O'Brian, W.S.	✓	4			"
Pughe, J.F.	✓	1	6	30	"
Spencer, G.N.	✓		3	30	"
St. John, F.	✓		2		"
Stoddard, X.T.	✓		7		"
Taggart, B.G.	✓	9			Sick
Whitehead, H.R.	✓	1	3		Leave

MELTERS AND REFINERS OF BULLION BALANCES.

DEVELOP

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to
Superintendent of the Mint by him during the month of November, 1907.

GOLD.

GOLD.		STANDARD OUNCE.	
Received	NOV. 1 19		
Balance		712	116
Contained in Gold Deposits		59	669
Contained in Silver Deposits		4	965
Contained in		117	526
Clippings, blanks, etc.		5	810
Con'd coin			150
			990
		890	888
			716
Delivered			
Ingots			
Bars, Fine			
Bars, Standard			
Bars, Unparted			
Bars			
Sweeps			
Balance	NOV. 30, 1907		
	19		
		523	797
			750
		570	090
		895	888
			716

SILVER.

SILVER.		STANDARD OUNCES.	
Received	Nov. 1 19		
Balance		305	689 16
Contained in Gold Deposits		7	634 91
Contained in Silver Deposits		19	648 69
Contained in	Fine bars	666	108 47
Clippings, blanks, etc.	Con'd coin	158	743 15
		31	984 25
		1169	788 63
		Delivered	
		Ingot's	
		Bars, Fine	
		Bars, Standard	
		Bars, Unparted	
		Bars	
		Sweep's	
Balance	Nov. 30, 1907		
	19		
		641	688 50
		628	136 15
		1169	788 63

COBRENT:

December 5

1907.

Melter and Refiner.

REFINERY

1. Product: a. Gold
- b. Silver

Total

Fine ozs.
 178,313.615
 165,657.377
343,971.000

Standard ozs.
 198,570.000
 177,980.612
376,550.612

2. Costs:

Totals

Cost per oz.

a. Labor 1520.83
 b. Crucibles, covers
 rings 103.80
 c. Acids 427.98
 d. Incidentals 202.33
 e. Mitts, gloves,
 aprons 48.45
 f. Chemicals 20.00
 g. Sweep cellar 77.72
 h. M. & R. Gen'l 202.34
 i. Fuel 131.65
 j. Power 645.33
 k. Repairs 154.51
 l. Light & Vent. 110.00
 m. Sick leave &c 50.00

Totals 3308.38

.00410087

.00028338

.00133498

.00035355

.00013854

.00002471

.00011972

.00056987

.00049695

.00172002

.00042270

.00020098

.00016672

.01041897

3. New Equipment

251.02

Total Expense

\$4039.40

4. Crude bullion refined, approximately,

449,983.50 ozs.

5. Cost per crude ounce, .00846525

6. " " standard " .01041897

7. " " fine " .01157664

SWEEPS CELLAR

1. Product: a. Gold, standard ozs. 134.064

b. Silver " " 212.730

c. Tailings, avoird. lbs., 12,603

2. Costs: a. Labor

85.75

b. Power

9.96

c. Repairs

6.20

d. Light

10.00

e. Incidentals

6.75

Total Expense

118.66

3. Tailings: a. Amount avoird. lbs. 12,603

b. Contained gold, 39.716

c. " silver 168.300

4. Percentage of extraction: a. Gold .711
- b. Silver .518

5. Departments charged as follows:

a. Refinery, 77.78

b. Ingot melting room 40.88

INGOT MELTING ROOM

1. Amt. of bullion melted: a. Gold,
b. Silver, Total

Standard ozs.
354,534.14
615,861.75
970,395.89

2. Amt. of good ingots: a. Double eagles
b. Half eagles
c. Half dollars
d. Dimes Total

330,819.39
5,115.39
567,196.85
11,692.75
914,824.38

3. Cost of ingots:

	Gold		Silver		Total	
	Total	Per oz.	Total	Per oz.	Total	Per oz.
a. Labor	340.11	.00161242	676.70	.00116896	1016.81	.00111142
b. M. & R. Gen'l	36.28	.00016753	152.05	.00026265	208.33	.00022772
c. Molds, gloves	11.12	.00003310	32.00	.00005527	43.12	.00004713
d. Crucibles	23.36	.00007846	49.80	.00008602	76.16	.00008325
e. Sweeps cellar	11.05	.00003289	29.83	.00005152	40.88	.00004468
f. Incidentals	31.88	.00009489	49.63	.00008573	81.51	.00008909
g. Fuel	85.40	.00025421	113.05	.00019528	198.45	.00021692
h. Power	19.05	.00005670	51.48	.00008892	70.53	.00007580
i. Light & Vent.	11.32	.00003369	30.58	.00005282	41.90	.00004533
j. Repairs	18.62	.00005542	50.30	.00008689	68.92	.00007533
k. Sick leave	6.08	.00001809	16.42	.00002836	22.50	.00002459
Totals	517.27	.00162748	1251.84	.00216248	1869.11	.00204313
l. Alloy Cop'r	418.47	.00124568	795.87	.00137482	1214.34	.00132740
Totals incl. Alloy Copper	1035.74	.00302315	2047.71	.00353730	3083.45	.00337053
					29.88	
4. New Equipment					3113.33	
Total Expense						

5. Percentage of good ingots to amt. bullion melted: a. Gold, 94.75
b. Silver, 93.99

6. Average cost of ingots per ounce for five months:

	Gold	Silver	Total
a. Excluding Alloy copper	.00237683	.00303269	.00277533
b. Including	.00350294	.00384247	.00370924

7. Cost distributed to denominations:

a. Double eagles,	1015.56
b. Half eagles	20.18
c. Half dollars	1007.92
d. Dimes	39.89

Total \$3083.45

M I N T

D E N V E R

December, 1907

Melter & Refiner's

			Leave
Adams, O.L.	1		"
Arnold, R.G.	4		"
Bush, W.H.	5		"
	2		"
Crory, J.E.			"
	1		"
Dakin, C.W.			"
	5		"
Dardis, W.W.			"
	1		"
Howard, H.			"
	1	6	"
Pughe, J.F.			"
	1		"
Shields, E.G.			"
	2	1	"
Spencer, G.N.		5	"
St. John, F.		4	"
Stoddard, X.T.			"
	1	30	"
Wirth, R.P.			

U. S. MINT SERVICE.
Form No. 319.
Est. Feb. 24th, 1900. — 8 x 10 1/2.

MELTERS AND REFINERS OF BULLION BALANCES.

Minist of the United States at D E N V E R

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Deliveries to the Superintendent of the Mint by him during the month of December, 1907.

GOLD.

[illegible]

SILVER

[illegible]

COPYRIGHT:

January 5, 1908.

Melter und Refiner

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

January 4, 1908.

Hon. Frank M. Damer,
Superintendent U.S.Mint,
Denver.

Sir:

I have the honor, as well as the very great pleasure, of informing you that in the month of December, 1907, the Ingot Melting room produced 1,880,194.65 standard ounces of silver half dollar ingots, without having any metal remelted or condemned.

This indicates not only exceptional ability, but extraordinary care on the part of the Make-up and Ingot Melting room forces to whom the credit for the above favorable showing is due.

Respectfully,

J. E. Williams
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER.

MELTER AND REFINER'S DEPARTMENT.

January 7, 1892.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

I have the honor of directing your attention to a matter of vital importance regarding our Sweeps cellar. I understand the contract recently awarded to Wm. Duthie to make an inside entrance from the Mint building to the Sweeps cellar includes also the closing up of the alley-way entrance at the south end of the Sweeps cellar. This alley-way entrance was originally designed for the purpose of placing therein a small hoist or elevator to raise the tailings from the Sweeps cellar up to the alley-way for loading into the wagons for shipment, as well as for the purpose of ventilation. The hoist has never been installed, and so we have had to carry all the tailings up two flights of steps to reach the wagons. However, said alley-way entrance has been a very important factor in our operations in the Sweeps cellar as a ventilator; we dry all our tailings on a steam drier and under the most favorable conditions obtaining at present it is far from being a pleasant place to work in, as we only have one other opening, and that is at the southeast corner, the entrance door. Some time ago, I recommended that a grille be placed across the face of the archway forming the entrance to said alley-way opening as a measure of safety, and I now renew said recommendation, and very

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Denver - 2

earnestly protest against the closing of said alley-way opening, or making any change thereof, other than the placing of said grille.

I also recommend the installation of said elevator so as to do away with the laborious and expensive carrying by hand of the tailings up two flights of stairs to the alley.

On at least two previous occasions I have recommended certain changes in the Sweeps cellar, regarding which no action has been taken, and it seems proper for me to refer to them in this communication. The size of our Sweeps cellar is 37 by 44 feet, with six concrete pillars each two feet square supporting the roof, and the lighting of the room is entirely by artificial means, as daylight cannot enter anywhere. This room is not large enough for our purposes, in fact not large enough to complete the installation of our equipment, and until we get more space it would be very difficult to install the concentrating table necessary to complete our system of extraction.

I recommend that the Sweeps cellar be extended in length to the North twenty feet; and that the present dirt roof be entirely discarded and be replaced by a suitable concrete arch roof, with the necessary provision for light and ventilation. And if the roof cannot for any reason be changed in the near future, then six-inch iron columns should be substituted for the large concrete pillars.

The inside passage-way, now under contract, is of such a nature that it can be used for the passage of the employees, but

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Downer - 3

not for the transportation of sweeps, as there are two flights of steps to go down, one at the exit of the main building and the other at the entrance to the Sweeps cellar. My idea was to have said passage-way extend due west from its exit in the main building to the west line of the Sweeps cellar and then turn south along the west wall (extended) of the Sweeps cellar a distance of 22 feet, thus giving us a distance of 76 feet in which to drop 7 feet, which would permit of the passage-way being built without any steps, and on such a grade that we could easily truck down the sweeps from the main building, which would be quite sufficient as the tailings would be removed by the alley-way exit.

Trusting that I have made my views clear in a general way, and assuring you that it will be a pleasure to present the whole matter in detail if desired, I remain,

Respectfully yours,

John W. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

January 7, 1908.

Hon Frank M. Iowner,
Superintendent, U. S. Mint,
Denver.

sr:

I have the honor of calling your attention to our very great need of more help in the Ingot melting room. Our Sweeps cellar has been closed down since November because we did not have sufficient help to run it, on account of temporarily transferring our Sweeps cellar force to the Ingot melting room. Our sweeps have accumulated to such an extent that it becomes imperatively necessary to again operate the Sweeps cellar. This requires the taking away from the Ingot melting room of two men, but the Foreman informs me that he will try and if possible do the work if I can get him another man. I therefore most earnestly recommend the immediate appointment of a helper to work in the Ingot melting room.

Very respectfully,

Joseph Milson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

January 8, 1908.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

Supplementing my communication of yesterday regarding the appointment of an additional helper to work in the Ingot melting room, I now recommend the temporary appointment of Joseph H. Spencer to said position. I further recommend that such appointment become effective on the 9th instant.

Respectfully,

Joseph H. Spencer
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER
MELTER AND REFINER'S DEPARTMENT,

January 8, 1908.

Mr. Charles M. Gorham,
Melter and Refiner, U. S. Mint,
San Francisco, Cal.

My dear Sir:

The many happenings incident to the holiday season have delayed my answer to your communication of December 24th, 1907, regarding matters incident to the make-up of melts for your new Refinery.

The gross weight of our anode melts for the Refinery run as follows: Gold anodes from 5500 to 6000 ounces, and Silver anodes from 4400 to 4600 ounces.

We cannot make a general average of fineness of the crude bullion on hand for the purpose of making up anode melts, because the average would probably never be the necessary mixture for the work. Our method is as follows: We enter all our receipts in a book known as the "Melter and Refiner's Register of Bullion Deposits received," (copy enclosed), and we select from said record the deposit bars we believe necessary for the make-up of the desired gold or silver anode melts; however, if the necessary calculations determine that the melt is not of the proper proportions, it then becomes necessary to strike out a bar or two and substitute others containing more or less gold, silver, or base, so as to make the desired percentage of each metal. When the melt is completed as above (on paper), we select the deposits

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Serial - 2

From the vault shelves by number, put them together in a box with a slip on which is written the melt number, the numbers of bars and the percentage contents of the mass in gold, silver and base; the foreman of the Refinery checks the weight as shown on the make-up sheet as the melt is weighed to him, and gives a receipt therefor, and the same is then charged to the Refinery.

The silver anode melts are somewhat easier to make up, because the nature of our deposits is such that we make very few silver anode melts exclusively from deposits; that is, we are required usually to add "refinery silver" to the melts; and in such cases we select deposit bars containing the proper percentage of gold and base and then add to the silver a sufficient amount from the Refinery to make the necessary percentage. I think I should explain what I mean by "refinery silver" in the preceding paragraph: We strip off most of the silver from our silver anodes in granular form, and when we find a cathode that will not let go of its silver we melt it in the Refinery melting room for fine silver bar or cathode purposes. But the granular silver is just the thing to help make up the silver melts, because it is very compact, an ordinary ingot box holding about 2200 ounces, and it is so easily divided for weight-making purposes. When we have the silver anode melts made up ready for the additional silver, we notify the foreman of the Refinery of the amount of silver necessary, and when he comes down to get the melts, he brings the granular silver with him, and it is then weighed up with

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Denver - 5

bars to complete the make-up of the melts. The Refinery is neither credited or charged with said granular silver, but an account of it is kept for the purpose of determining the production of the Refinery.

Our gold anode melts run in fineness of gold from 900 up; silver should not exceed 20 parts, and the balance base.

The silver anode melts run from 320 gold and 600 silver to 390 gold and 550 silver, the balance base; however, our best results are obtained by keeping the gold up to not less than 350.

I enclose herewith copy of part of page 8 of M. & R. Register of Gold Deposits (the register of silver deposits is same form); copies of six make-ups of anode melts, being "Gold Anode Melts," Nos. 238, 59, and 61, and "Silver Anode Melts," Nos. 183, 190, and 193, which are exact copies of actual work and are self-explanatory.

We have not succeeded in securing any ruled books from the Mint Bureau to fit this work, and so we get the blank books and do the necessary ruling ourselves.

We have not discovered any short way of making the original calculations for this work, but we do our checking on a "Millionaire Calculating Machine" which helps some.

I believe this fully covers your inquiries, but if it does not or if you think of anything else, don't fail to ask for it, as we will be only too glad to give you the full benefit of our experience.

Very truly yours,

Joseph Harrison
Melter and Refiner.

REFINERY

1. Product:		Fine Ounces	Standard ounces
		<u>107,522.529</u>	<u>119,489.477</u>
	a. Gold		
	b. Silver	<u>145,990.494</u>	<u>162,211.660</u>
	Total	<u>253,513.023</u>	<u>281,681.137</u>

2. Costs:	Totals	Cost per oz.
a. Labor	1322.27	.00469420
b. Crucibles, covers		
rings	103.10	.00036601
c. Acids	436.21	.00154859
d. Incidentals	269.19	.00095565
e. Mitts, gloves,		
Aprons	45.20	.00016046
f. Chemicals	20.00	.00007100
g. Sweeps cellar	.00	.00000000
h. M. & R. Gen'l	192.36	.00068289
i. Fuel	177.10	.00062872
j. Power	452.97	.00160809
k. Repairs	105.07	.00037301
l. Light & Vent'l'n	149.95	.00053233
m. Sick leave &		
holidays	138.40	.00049133
Totals	<u>3411.82</u>	<u>.01211234</u>

3. New Equipment	43.70
Total Expense	<u>3455.52</u>

4. Crude bullion refined, approximately,	361,483.48
5. Cost per crude ounce	.00943838
6. " " standard "	.01211234
7. " " fine "	.01345816

SWEEP CELLAR not operating.

INGOT MELTING ROOM

1. Amount of bullion melted, all silver, standard ounces, 1904,405.66
2. " " good ingots, all half dollars " " 1880,194.65

3. Cost of Ingots:

	Total	Silver	Per ounce
a. Labor	1908.57		.00101509
b. M. & R. General	192.37		.00010231
c. Mitts & gloves	70.62		.00003755
d. Crucibles	221.64		.00011788
e. Sweeps cellar	0.00		.00000000
f. Incidentals	147.67		.00007853
g. Fuel	366.80		.00019508
h. Power	81.93		.00004357
i. Light & Ventilation	74.97		.00003987
j. Repairs	98.66		.00005247
k. Sick leave and holidays	208.35		.00011081
Totals	3371.58		.00179320
1. Alloy copper	2525.25		.00134307
Totals including alloy			
copper (@ 27-3/4 per lb.)	5896.83		.00313628

4. New Equipment

339.35

Total expense

\$6236.18

5. Percentage of good ingots to amount of bullion melted, 98.7

6. Average cost of ingots per ounce for six months:

	Gold	Silver	Total
a. Excluding alloy copper	.00237685	.00242870	.00241580
b. Including " "	.00350294	.00349834	.00349949

The above percentage of good ingots is the largest that can be obtained unless the tops are excluded from the calculation, in which event the percentage for this month would be 99.89.

During the month we did not have an ingot remelted or condemned.
 Query:- Should the tops be excluded from the calculations? How is it in the othermints?

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

January 15, 1909.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

I have the honor of presenting the following facts relative to the number of employees in the Melter and Refiner's department, showing the inadequacy of our present force, and making certain recommendations with reference thereto:

We originally got our Refinery under way, gold cells only, with a foreman, two melters, two cell men, and seven helpers; of the latter, four worked nights, two on each shift, which left us but three day helpers for both refinery and melting room. Some time later we secured another melter from the Deposit melting room. Recognizing our need for more help, about January 1, 1907, you detailed O'Brian and Arnold, General department helpers, to this department, and they were placed in the Refinery where they have remained to the present time, with the exception of last May, June, and July, when the Refinery was closed down. The transfer of Mr. Boyle to Philadelphia reduced the number of our melters, but that was promptly met by the promotion of a competent helper to the position of assistant melter, and the helper vacancy was covered by your detail of Dardis, another General department helper, to the Refinery.

Whenever there has been any extra work required in the Ingot room, we have had to secure the additional help from the Refinery

MINT OF THE UNITED STATES AT DENVER,

Denver -- 8

MELTER AND REFINER'S DEPARTMENT,

or Sweeps cellar, and in the latter part of November, when you directed us to push our ingot work to the limit, it necessitated the transfer of one melter and three helpers from the Refinery to the Ingot room, and they are still working in said Ingot room.

In August, 1907, we commenced the regular operation of all our silver cells, which, on account of the smallness of our force, caused ^{us} ~~to~~ cut out some of our gold cells; but this was not detrimental to our general Refinery work, because the amount of gold bullion on hand that could be used in the gold cells direct, that is, without first passing through the silver cells, was very limited. When the rush on silver began in the latter part of November, we reduced the number of our gold cells to eight, that number being sufficient to take care of all the gold product of our silver cells. However, owing to the number of men transferred to the Ingot room, it became absolutely necessary to work the refinery day force of six men two hours overtime each day in the Refinery melting room, so as to keep up with our work; those conditions still exist, and it is all we can possibly do to keep going; in fact, if one man gets sick, it is necessary for us to work some other man a double shift, sixteen hours, as we have done several times during the last month. The General department helpers, O'Brian, Arnold, and Dardie whom you detailed to our department are all careful and willing workers, who, I think, should remain permanently in the Melter and Refiner's department and receive the same compensation as do others performing like services.

In the Ingot melting room we started work with a foreman, two

MINT OF THE UNITED STATES AT DENVER,

Downer - 3

MELTER AND REFINER'S DEPARTMENT,

melting, and two helpers, and later you transferred to us another melter from the Deposit melting room; but this did not permanently increase our force as Mr. Quirk, the foreman, was transferred to the Mint at Philadelphia, again reducing us to our original force of five men; and that is our ^{force} regular in that room at the present time, not counting, of course, your temporary appointment of Jos. Spencer on the 6th inst. During the recent rush on silver, we augmented this force by the addition of one melter and three helpers from the Refinery and two men from the Sweeps cellar on week days, and on six Sundays we increased that by two more melters and two helpers from the Refinery melting room.

This arrangement procured the amount of ingots you desired, but closed down the Sweeps cellar which has been entirely out of commission at least four months during 1907 because we did not have the men to run it. Our accumulation of sweeps is very large at the present time, and it will take continuous pushing work to dispose of them and what accumulates in the meantime, before settlement. I am very strongly of the opinion that the Sweeps cellar should work constantly so that we can keep up with a knowledge of the conditions as well as losses in the Refinery and Ingot melting rooms, and also because we always obtain our best results from Sweeps cellar operations when they are not overcrowded.

In addition to the foregoing, we have had a reverberatory furnace in the building for many months, but as we could not possibly spare the men to erect it, it is still out of commission. I am very anxious to have it installed as soon as possible, so that

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT.

Downer - 4

we can treat our base copper from the Refinery and get the gold out of it, and thus avoid the necessity of again passing up to Settlement Commission base copper bars containing such a small portion of gold -- 15 to 30 points.

I have always been and am now in hearty accord with you as to the centering of our force at the point of emergency and thus avoiding temporary appointments which must be revoked as soon as the emergency passes; but the force in this department is so small that any absence causes embarrassment, and as we cannot prevent either sickness or accidents, not to mention other causes of enforced absences, I am firmly convinced that it would be a wise economy to make such additions to our force as would at least in ordinary circumstances remove the harassment incident to the shortage of help which so frequently occurs.

I therefore most earnestly recommend:

First. That General department helpers William S. O'Brien, Robert G. Arnold, and William M. Dardis be permanently transferred to the Melter and Refiner's department, at a compensation of \$3.85 per day.

Second. That the Melter and Refiner's department be furnished with one additional helper for the Refinery, at \$3.85 per day.

Third. That the Melter and Refiner's department be furnished with one additional helper for the Ingot room, at \$3.85 per day, and, in addition that the temporary appointment of Jos. Spencer be made permanent, or if he should not become eligible, that another be substituted in his place.

MINT OF THE UNITED STATES AT DENVER,

Denver - 5

MELTER AND REFINER'S DEPARTMENT,

These recommendations are made to cover ordinary requirements, and in case of rush work, it will be necessary to concentrate our forces at the point of emergency as we have heretofore done.

Very respectfully,

J. C. Williamson

Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

...and later you transferred to us another ... but this did not permanently ... Mr. Quirk, the foreman, was transferred to ... again reducing us to our original force of ... and that is our regular force in that room at the present time, not counting, of course, your temporary appointment of Mr. Spencer on the 8th inst. During the recent rush on silver, we augmented this force by the addition of one melter and three balancers from the Refinery and two men from the Sweeps cellar.

This arrangement procured the amount of ingots you desired, but closed down the Sweeps cellar which has been entirely out of commission at least four months during 1907, because we did not have the men to run it. Our accumulation of sweeps is very large at the present time, and it will take continuous pushing work to clear it out and what accumulates in the meantime, before settlement. I am very strongly of the opinion that the Sweeps cellar should work constantly so that we can keep up with a knowledge of the conditions as well as losses in the Refinery and Ingot melting rooms, and also because we always obtain our best results from sweeps cellar operations when they are not overcrowded.

In addition to the foregoing, we have had a reverberatory furnace in the building for many months, but as we could not possibly spare the men to erect it, it is still out of commission. I am very anxious to have it installed as soon as possible, so that

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

January 17, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

I have had the pleasure of reading and carefully considering the communication of the Director of the Mint, dated January 13, 1908, and the accompanying copy of a letter written by Dr. D. K. Tatble, Melter and Refiner of the Philadelphia Mint, with reference to the use of Cupric Chloride as a flux for brittle gold. Dr. Tatble has discovered or perfected many things that have been of much benefit to the mint operations, and this last step is certainly interesting as well as valuable, particularly the method he has employed to dehydrate the cupric chloride, and as well the way he has devised for applying it to the brittle melt; and, while our operations have never required the toughening of any melts, on account of the exclusive use of electrolytic gold, silver, and copper in our ingot work, yet I will appreciate it very much if you will permit me to retain said communications so that I can make use of the information therein contained should the occasion ever require.

As to the bell-shaped graphite stirrer, we have always used a modified form of the Philadelphia stirrer in all our gold work.

Respectfully,

J. J. J. J.
Melter and Refiner.

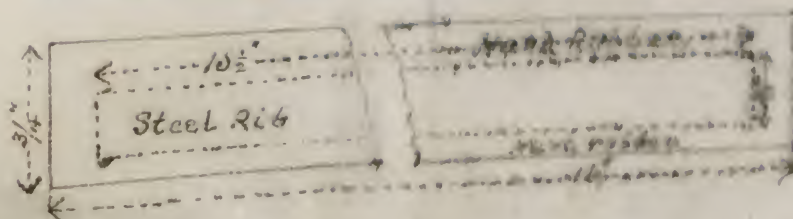
MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

January 27, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

I have the honor of requesting the obtainment from the American Hard Rubber Co., 9 Mercer St., New York, of a sample hard rubber rod with a $1/8$ "x $3/8$ " steel rib running through the center, closed at each end with the rubber so that no part of the rib is exposed, and of the dimensions shown by the following diagram of the transverse and longitudinal sections, to wit:



This rod is designed to take the place of the porcelain rods now used on our gold cells, which become very brittle when heated by the occasional short circuiting of the current, then breaking and causing considerable loss, as their importation from Germany makes them quite expensive. I would also suggest that said Hard Rubber Company be requested to furnish us with said sample a price on 300 of said rods, so that if the sample rod and price are satisfactory, we can immediately place the contract for said equipment.

Respectfully,

James M. Downer
Melter and Refiner.

U. S. MINT SERVICE.
Form No. 219.
Ed. Feb. 8-45-500.—8 x 10½.

MELTERS AND REFINERS OF BULLION BALANCES.

Print of the United States at D E N V E R

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of JANUARY, 1908.

GOLD.

[illegible]

NUMBER.

[illegible]

CORRECT:

February 1, 1903.

Superintendent.

Melter and Refiner.

M I N T

D E N V E R

January, 1900

Melter & Refiner's

Bush, W.M.	1	30	Leave
Chaffee, D.		30	"
Dakin, C.W.	6	30	"
Heerich, J.M.	4		Sick
Howard, M.	1		Leave
Morrison, R.C.	2		"
Pughe, J.F.	2	30	"
"	2		Sick
Smith, E.S.	4		Leave
Spencer, G.N.	1	30	"
"	3		Sick
St. John, F.	3		Leave
Schell, E.P.	2		"
Whitaker, S.R.		30	"
Wirth, B.P.	1		"

Jan/03

REFINERY

		Fine ounces	Standard ozs.
1. Product:	A. Gold	104,119.035	115,327.817
	b. Silver	149,760.000	166,400.000
Totals		253,879.035	282,027.817
<hr/>			
2. Costs:	Totals	Cost per ounce	
a. Labor	1461.83	.00518218	
b. Crucibles, covers, rings	111.60	.00038562	
c. Acids	396.15	.00146434	
d. Incidentals	261.70	.00092772	
e. Mitts, gloves, aprons	53.26	.00019880	
f. Chemicals	30.00	.00007029	
g. Sweeps cellar	281.05	.00099552	
h. M. & R. Gen'l	195.55	.00069322	
i. Fuel	249.20	.00088341	
j. Power	589.35	.00208924	
k. Repairs	96.65	.00034202	
l. Light, ventilation & pump	120.84	.00042837	
m. Sick leave, vacation & holidays	19.57	.00006237	
Totals		3856.75	.01367216
3. New Equipment	179.32		
Total Expense		4036.07	
<hr/>			
4. Crude bullion refined, approximately,	366,587.79		
5. Cost per crude ounce,	.01052067		
6. " " standard "	.01367216		
7. " " fine "	.01519129		

Jan/08

INGOT MELTING ROOM

1. Amount of bullion melted:	a. Gold, standard ozs.	75,176.64
	b. Silver " "	921,470.24
	Total	996,646.88

2. Amount of good ingots:	a. Double eagles,	38,416.38	
	b. Eagles	36,681.38	75,097.76
	c. Half dollars	474,335.60	
	d. Quarter "	373,125.35	
	e. Dimes	56,605.85	904,066.80
	Total		979,164.56

3. Cost of Ingots:

	Gold		Silver		Total	
	Total	Cost per oz	Total	Cost per oz	Total	Cost per oz
a. Labor	98.55	.00131228	1233.22	.00136408	1331.77	.00136010
b. M. & R. Gen'l	14.47	.00019268	181.08	.00020029	195.55	.00019971
c. Mitts, gloves	2.62	.00003488	47.50	.00005254	50.12	.00005119
d. Crucibles	10.04	.00013369	87.40	.00009667	97.44	.00009351
e. Sweeps cellar	0.00	.00000000	0.00	.00000000	0.00	.00000000
f. Incidentals	8.36	.00008468	100.33	.00011097	106.69	.00010896
g. Fuel	12.00	.00015979	247.60	.00027387	259.60	.00026512
h. Power	3.21	.00004274	40.20	.00004446	43.41	.00004433
i. Light, ventil'n	1.55	.00002063	19.45	.00002151	21.00	.00002144
j. Repairs	3.66	.00004873	45.84	.00005070	49.50	.00005055
k. Sick leave, &c	3.08	.00004101	38.55	.00004264	41.63	.00004251

Totals 155.54 .00207116 2041.17 .00225776 2196.71 .00224345

1. Alloy copper 45.78 .00060960 761.81 .00084264 807.59 .00082477

Totals, including Alloy Cop. 201.32 .00268077 2802.98 .00310041 3004.30 .00306822

4. New Equipment

164.76

Total expense

\$3169.06

5. Percentage good ingots to amt. bullion melted: Gold, 99.89
Silver 98.11

6. Average cost per ounce of ingots for seven months:

	Gold	Silver	Total
a. Excluding alloy copper	.00235986	.00239625	.00238820
b. Including " "	.00345729	.00342281	.00343044

7. Costs distributed to denominations:

a. Double eagles	102.98
b. Eagles	98.34
c. Half dollars	1470.73
d. Quarter "	1156.79
e. Dimes	175.46

Total \$3004.30

DEPOSIT MELTING

a. Power	14.12
b. Fuel	84.24
Total	\$98.36

Jan/08

SWEEPS CELLAR

1. Product	a. Gold - Standard ounces	248.340	
	b. Silver " "	563.220	
	c. Tailings, avoir. lbs.	- - -	9457

2. Costs:

a. Labor	147.00
b. Power	23.54
c. Light, ventilation & pump	30.00
d. Incidentals	11.92
e. Repairs	68.59,

Total expense \$281.05

3. Tailings:

a. Amount, avoir. lbs.	9457	
b. Contained Gold, standard ozs.	24.136	
c. " Silver " "	256.66	

4. Percentage of extraction:

a. Gold	88.50
b. Silver	68.69

5. Departments charged as follows: All to Refinery.

MELTERS AND REFINERS OF BULLION BALANCES.

Mint of the United States at DENVER

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of FEBRUARY, 1903.

GOLD.

Received	Balance	Feb. 1 19	STANDARD OUNCES.			Delivered	Balance Feb. 29, 1903	19	STANDARD OUNCES.		
			751	398	495				459	826	900
Contained in Gold Deposits			55	115	690	Ingots					
Contained in Silver Deposits			4	487	461	Bars, Fine					
Contained in						Bars, Standard					
Clippings, blanks, etc.			95	015	630	Bars, Unparted					
						Bars					
						Sweeps					
			904	015	274				464	719	878
									904	015	874

SILVER.

Received	Balance	Feb. 1 19	STANDARD OUNCES.			Delivered	Balance Feb. 29, 1903	19	STANDARD OUNCES.		
			1	325	989				456	626	85
Contained in Gold Deposits			7	109	77	Ingots					
Contained in Silver Deposits			21	015	20	Bars, Fine					
Contained in			325	204	51	Bars, Standard					
Clippings, blanks, etc.			103	663	05	Bars, Unparted					
			16	253	75	Bars					
						Sweeps					
			1	308	125				1	147	130
									1	309	225

CORRECT:

Superintendent.

MARCH 2

1903.

John W. Johnson
Melter and Refiner.

Mint

Denver

Melter and Refiner's

February, 1903

Arnold, R.G.	3	1	30	Leave
Fuch, W.M.		1	30	"
Hetrick, J.M.	3			"
"	26			Sick
Pughe, J.F.			30	Leave
Ryan, P.	2			"
Schell, E.P.	1	4		"
Spencer, G.N.	1	5	30	"
St. John, F.		4	30	"
Stoddard, X.T.		2	30	"
Whitaker, S.R.	2			"
Winn, H.H.		1		"
Wirth, B.F.		4		"

REFINERY

1. Product: a. Gold 110,392.70 Fine 850.
b. Silver 145,470.57 " "

Total 255,863.27 " "

2. Costs: Totals Cost per oz.

a. Labor	1333.45	.00539435
b. Crucibles	87.40	.00034979
c. Acids	204.52	.00114232
d. Incidentals	190.73	.00070470
e. Mitts & Gloves	58.74	.00023903
f. Chemicals	15.00	.00005949
g. Sweeps cellar	72.80	.00029386
h. M. & R. Gen'l	125.00	.00049740
i. Fuel	214.00	.00085442
j. Power	609.74	.00237742
k. Repairs	160.22	.00062473
l. Light & Ventilation	70.00	.00027224
m. Sick leave, vacation & holidays	146.68	.00057193
n. Assays	248.05	.00096712

Totals 3666.33 .01422575

3. New Equipment

195.31

Total expense

3861.64

4. Average cost per fine ounce since July, 1907, .01371282

5. Crude bullion refined, approximately, 364,066.324 gross ozs.
Cost per gross ounce .01007050

6. Average cost per gross ounce since July, 1907, .00968541

Feb/08

INGOT MELTING

1. Amt. of bullion melted:	a. Gold, std. ozs.	433,923.46
	b. Silver "	358,071.05
	Total	791,994.51

2. Amt. good ingots:	a. Double Eagles	425,127.59
	b. Half Dollars	230,548.60
	c. Dimes	121,012.45
	Total	776,688.64

3. Cost of Ingots:	Gold		Silver		Total	
	Total!	Per oz. :	Total!	Per oz. :	Total!	Per oz.
a. Labor	344.69	.00081079	327.23	.00093079	671.92	.00086510
b. M. & R. Gen'l	64.12	.00015082	60.88	.00017317	125.00	.00016093
c. Mitts, gloves	11.25	.00002646	13.12	.00003731	24.37	.00003137
d. Crucibles	35.56	.00008364	32.20	.00009159	67.76	.00008724
e. Swp. Cellar	87.09	.00020485	82.77	.00023543	169.86	.00021869
f. Incidentals	54.06	.00012716	73.97	.00021040	128.03	.00016484
g. Fuel	88.00	.00020699	104.80	.00029809	192.80	.00024823
h. Power	28.40	.00006680	26.95	.00007665	55.35	.00007126
i. Light, Ventl'n	10.26	.00002413	9.74	.00002770	20.00	.00002575
j. Repairs	23.77	.00005591	22.57	.00006419	46.34	.00005966
k. Sick lv. &c.	65.38	.00015378	62.08	.00017658	127.46	.00016410
Totals	812.58	.00191137	816.31	.00232195	1628.89	.00209722
1. Alloy Copper	629.37	.00148042	489.88	.00139344	1119.25	.00144105
Totals incl.						
Alloy Copper	1441.95	.00339180	1306.19	.00371540	2748.14	.00353827

4. New Equipment

20.69

Total expense

2768.83

5. Percentage good ingots to amt. bullion melted:	a. Gold	97.97
	b. Silver	98.18

6. Average cost per oz. of Ingots for eight months:

	Gold	Silver	Total
a. Excluding alloy copper	.00225261	.00239115	.00235541
b. Including "	.00344163	.00344293	.00344259

7. Costs distributed as follows:	a. Double eagles	1441.95
	b. Half dollars	856.86
	c. Dimes	449.33
	Total	\$2748.14

DEPOSIT MELTING

a. Power	14.05
b. Fuel	77.78
c. Repairs	8.50
d. New Equipment	46.72

Total

147.03

Feb/08

SWEEPS CELLAR

1. Product:	a. Gold	standard ounces	161.811
	b. Silver	" "	788.00
	c. Tailings, avoir. lbs.	- - -	21,620

2. Costs:

a. Labor	173.61
b. Power	14.38
c. Light & ventilation	29.67
d. Incidentals	5.65
e. Sick leave &c	8.45
f. Repairs	<u>10.90</u>

Total expense	242.66
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3. Tailings:	a. Amount avoir. lbs.	<u>21,620</u>
	b. Contained Gold,	35.422
	c. " Silver,	<u>512.03</u>

4. Percentage of extraction:	a. Gold	82.04
	b. Silver	60.43

5. Departments charged as follows:

a. Ingot melting room	169.86
b. Refinery	<u>72.80</u>
Total	\$242.66

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

March 25, 1906.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

On January 16, 1906, Mr. J. M. Hetrich entered upon his work as Foreman of the Make-up room in this Mint, at a salary of \$1600 per annum. August 16th following, he was promoted to the position of Assistant Melter and Refiner which position he holds and the duties of which he has ever performed most satisfactorily. On February 6, 1906, Mr. John F. Pugh commenced work in the Melter and Refiner's department as a helper at \$3.25 per day and was assigned to the Make-up room; and on September 1st, 1906, following the promotion of Mr. Hetrich, he was advanced to the position of a skilled workman at \$4.50 per day; it being my intention, if he made good in the performance of his duties, to later recommend his advancement to the position and salary of Foreman of the Make-up room.

The make-up work has always been under the personal supervision of Mr. Hetrich, and, as he was never absent from his duties, we did not (until recently) have any opportunity of getting a satisfactory line on Mr. Pugh's ability. On January 27, 1906, Mr. Hetrich met with a severe accident which confined him in a hospital from that date until March 17th, and the entire supervision and responsibility of the Make-up room fell upon Mr. Pugh.

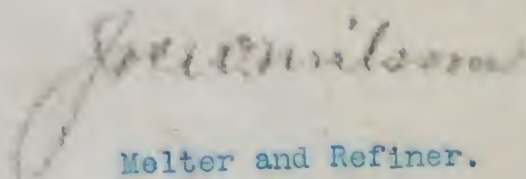
MINT OF THE UNITED STATES AT DENVER,

Denver - 2

MELTER AND REFINER'S DEPARTMENT,

and it affords me much pleasure to inform you that he acquitted himself splendidly in every way. He was at all times courteous to everybody and very willing and anxious to push the work along and he did not make any error or mistake of any kind from start to finish. I therefore most earnestly recommend that John F. Paghe be promoted to the position of Foreman of the Make-up room at a salary of sixteen hundred dollars per year, to take effect April first, 1908.

Respectfully,



Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

March 26, 1908.

Hon. Frank M. Downer,
Superintendent U.S. Mint,
Denver.

Sir:

I have the honor of presenting herewith for your consideration, a reclassification of the employees in the Melter and Refiner's department, under Department Circular No. 15, app. Feb. 28, 1908:

M. & R. General

Josiah M. Hetrich, Assistant Melter and Refiner
Farnum St. John, Clerk

Make-up Room

John F. Pughe, Foreman
Enos P. Schell, Helper

Ingot Melting room

Richard C. Morrison, Foreman
Denver Chaffee, Melter
William M. Eush, "
Michael Howard, Helper
William N. Dardis "
Joseph H. Spencer " (Temporary appointment, Jan. 9, 1908)

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

Refinery

Benno P. Wirth, Foreman

Herbert D. Bartlett, Skilled workman

John H. Crary "

Burt G. Shields "

Herbert H. Winn "

George Borstadt, Jr. "

Burt H. Taggart "

William S. O'Brian "

Robert G. Arnold "

George N. Spencer, Helper

Samuel R. Whitaker "

Xerxes T. Stoddard, Melter

Charles W. Dakin "

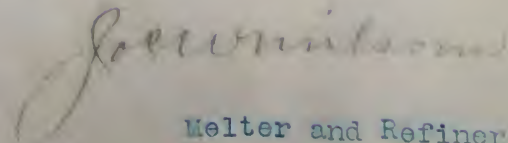
George B. Gray "

Sweeps Cellar

Elmer S. Smith, Skilled workman

Harry R. Whitehead "

Respectfully submitted,



Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

March 27, 1908.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

I have the honor of presenting herewith for your consideration
a reclassification of the employees in the Melter and Refiner's
department, under Department Circular No. 15, app. Feb. 28, 1908:

Schedule Sub. Div.

M. & R. General

Josiah M. Hetrich, Assistant M. & R.	B	
Farnum St. John, Clerk	C	2

Make-up Room

John F. Pughe, Foreman	D	2
Enos P. Schell, Helper	D	3

Ingot Melting Room

Richard C. Morrison, Foreman	D	2
Denver Chaffee, Melter	D	2
William M. Bush, "	D	2
Michael Howard, Helper	D	3
William N. Dardis, "	D	2
Joseph H. Spencer, " (temp. appointment Jan. 9, 1908)	D	3

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Superintendent - 2

Refinery	Schedule	Sub. Div.
Benno P. Wirth, Foreman	B	
Herbert D. Bartlett, Skilled Workman	D	1
John H. Crary, "	D	1
Eurt G. Shields, "	D	1
Herbert H. Wirm, "	D	1
George Borstadt, Jr., "	D	1
Eurt H. Taggart, "	D	1
William S. O'Brian, "	D	1
Robert G. Arnold, "	D	1
George M. Spencer, Helper	D	3
Samuel R. Whitaker, "	D	3
Patrick Ryan, "	D	3
Xerxes T. Stoddard, Melter	D	2
Charles W. Dakin, "	D	2
George B. Gray, "	D	2
Sweeps Cellar		
Elmer S. Smith, Foreman,	D	2
Harry R. Whitehead, Skilled Workman	D	1

Respectfully submitted,

Joseph M. Wilson
Melter and Refiner.

Minist of the United States at
DENVER

Gold and Silver ^{Bar} Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of March, 1908.

GOLD.

[illegible]

SILVER.

[illegible]

QUEST:

500574611111

1897

190 G

Belleville
3-2-1887

Wahre von Itein-

CIN

Denver

Walter and Refiner's

March, 1907.

Chaffee, B.		1		leave
Harbison, I.M.	16			"
Pugh, J.F.		1	30	"
Schell, J.E.	1	1		"
Shields, R.G.	1			"
Smith, J.S.			30	"
Spencer, G.F.	1			"
Spencer, J.E.	2			Without pay
St. John, P.		3		Leave
Stedman, E.C.		1		"
Tappert, B.H.	2			"
Whitcomb, H.A.		1		"
Whitcomb, S.R.	1			"
Wink, E.P.		3		"

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

April 6, 1908.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

I beg to hereby make requisition for the following books and blanks for use in the Melter and Refiner's department:

1 Silver Clipping Receipt book, Form No. 88		
1 Deposits sent to the Refinery, " " 328		
2 Foreman's record of Silver melting, Form No. 275		
2 M. & R.'s record of Gold ingot melting, Form No. 185		
" " " Silver " " " 184		
" " vault register (silver) " " 413B		
4 Register of Deposits, M. & R. Dept. " " _____		
1000 Anode melt blanks, (new copy attached)		
1000 Gold ingot melt blanks " "		
3000 Silver " " " " " "		
550 daily statements of operations, Form No. 722		

Accompanying this requisition are samples of all books and forms desired, showing style of paper, ruling, printing, and number of leaves in each book.

Respectfully,

John M. Downer
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

April 7, 1909.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

I hereby beg to make requisition for the following new books and blanks, of which samples are attached:

4 Registers of deposits
1000 Anode melt blanks
1000 Gold ingot melt blanks
3000 Silver " " "

Relative to the need of these new forms, I beg to make the following statement:

All deposits of bullion are listed in registers which we have been ruling ourselves for the past two years. A glance at the columns required for this work will show how essential the books are in the conduct of our refinery operations. In fact, they are so constantly in demand that we have found it necessary to keep two--one for gold deposits and one for silver--so that the unceasing requirements of the refinery make-up might not interfere almost altogether with the calculating of bars and alloys. We are now ruling our third book, and shall start a fourth in less than a month. No book furnished by the department at all answers our requirements in this matter.

The anode melt blanks asked for are required in the make-up of every charge sent to the refinery. Since August 30th, 1907,

MINT OF THE UNITED STATES AT DENVER,

Superintendent A. 2

MELTER AND REFINER'S DEPARTMENT,

We have ruled and used no less than 450 of these blanks. When a melt contains 20 bars or more, it is necessary to rule two or more pages for one melt.

The gold and silver ingot^{melt} blanks are furnished to the foreman of the ingot melting room, and serve as an identifying memorandum of the melt number, bar numbers, weights of bars and copper, etc. We have used more than 1800 of these during this fiscal year.

The ruling, writing, and stamping of these books and blanks takes a great deal of valuable time. I therefore respectfully ask that books and blanks substantially like the attached samples, be procured for the use of this department.

Respectfully,

James Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

April 7, 1908.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

In response to your inquiry for an outline of our plan for keeping a check on Refinery operations, I have the honor of presenting the following:

It may not be amiss to cover the whole Refinery account: so we will start at the office: After the foreman of the Make-up room has worked out his anode melts, they are entered in the "Record of Refinery Gold Melts," Form No. 871 (this book is not ruled just right as it should have columns for both gold and silver, as practically all of our anode melts contain both metals) and this entry on the debit side shows the kind of melt (i.e., gold or silver), the number of melt (consecutively from the beginning of the fiscal year), the particular bars of bullion composing the melt (by deposit number), the gross weight of melt, the fineness (as calculated by make-up) of both gold and silver and the standard ounces of each. On the credit side is shown the number of the melt of fine gold or silver returned from the Refinery, the number of bars comprising the melt, the gross weight, the fineness as certified by the Assayer, and the number of standard ounces; and from this book the posting is made to the "Refinery Account" Ledger (Form 869).

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

The Foreman of the Refinery (with such helpers as he finds necessary), receives and delivers all melts in the make-up room, and he is in charge of and responsible for all melts during transfer to and from Refinery; upon reaching the Refinery, the truck containing the melts is run into the Refinery steel vault (compartment locked), where it remains until needed for melting. Upon taking the melts out of the vault for delivery to the melting room the bars of each melt are again checked with the make-up slip that accompanies each melt until it goes into the crucible. When the melts are poured, a chip sample for assaying is taken from the first and last anode of gold melts, and a dip sample corresponding to first and last anode on silver melts. The crucibles used in making anode melts are completely emptied after each melt, so that we can get a check on the make-up by comparing the assays of the anode melts with the make-up finenesses, which, as a rule, check quite closely.

During the earlier operating of our Refinery, a system of checking was established which was as follows: The day cell-men (8 a.m. to 4 p.m.) would leave out of the vault enough anodes, cathodes, and hangers for the two night-shifts, with a written list of same, including what were in the cells, which would be checked and signed by the first night-shift (4 p.m. to 12 p.m.); the first night-shift would use whatever material was necessary and make a list of what was remaining, including the anode tops

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent - 3

taken out, which list would be checked and signed by the second night-shift; and they in turn would make a similar list which checked and would be assigned by the day-shift men coming on at 8 a.m.; and this system remains practically the same at the present time--in fact, just the same, with the exception of the anode tape, which we do not always remelt as formerly, because we have an insoluble hanger on which we hang them beneath the surface of the electrolyte and dissolve them, but of course that does not prevent keeping an account of them.

Four assay samples are taken from each melt of fine gold or silver, which from the former are by chip and from the latter by dip.

The foreman of the Refinery is required to give a receipt for all melts received by him, and in turn is given a receipt for all fine or settlement bullion returned by him to the Melter and Refiner. Of course, the anodes, cathodes, hangers, melts, sweats, etc., not in use are kept under lock in the Refinery vault, and we use all the care possible in our Refinery work, the foreman keeping in close touch with all the details of everything.

I think that covers the details of our check system, but I would like to add that twelve months is a very long time to run a Refinery operating upon many millions of gold without a settlement of some kind, and so I am strongly in favor of making an additional settlement with the Refinery in December of each year. This settlement need not exceed ten days in time, because it is

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 4

not necessary to tear out the furnaces or clean the flues, and it can easily be brought within a hundred ounces of gold of being correct; and our experience will enable us to very closely approximate the actual whereabouts of the balance. I have put this semi-annual Refinery settlement to the test, and it works well; it has a tendency to bring peace to the troubled soul.

Very respectfully,

James Wilson

Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

April 9, 1908.

Hon. Frank E. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

Referring to the communication, under date of April 4, 1908, of the Honorable Director of the Mint, with reference to the promotion of John F. Fughe, skilled workman, to the position of Foreman of the Make-up room, I must confess that the mistake in procedure was my own; but I would like to inform you how I came to be misled in the matter.

As you remember, we encountered some delay in the transfer of Mr. J. M. Hetrich, then assistant assayer at the Carson City Mint, to this institution; that caused considerable correspondence, in all of which the position we sought to transfer him to was always designated as "Foreman of the Make-up room." It was so designated by the then Director, Mr. Roberts, and it was under his advice that I made the recommendation for the transfer under said title, and Mr. Hetrich was carried on our rolls as such Foreman of the Make-up room at a salary of \$1600 per annum, until he was promoted to the position of Assistant Melter and Refiner. At this time, also, Mr. Fughe was promoted from the position of helper at \$3.35 per day to that of skilled workman at \$4.50 per day, to take the place made vacant by Mr. Hetrich's promotion, but without the title or full compensation, until such time as we could be fully satisfied

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

as to his competency.

As you remember, Mr. Hetrich was recently in St. Luke's Hospital for nearly two months, during which time Mr. Pughe had entire charge of the make-up work for both Refinery and Ingot room, and he acquitted himself of these duties with much credit and to our entire satisfaction; so I supposed it would be quite proper to recommend him for the foremanship of the Make-up room, a position which had been vacant since Mr. Hetrich's promotion.

The work performed by Mr. Pughe is somewhat different from that of a weigher, because he is required to do so much clerical work. As you know, I have only one clerk in my department, and he is so busy all the time that we cannot possibly increase his duties; so we all assist in keeping things moving, and Mr. Pughe's part is largely that of making check calculations on the make-up work, and looking after the necessary transfers, as well as assisting in the office when not otherwise engaged.

And so I respectfully ask permission to present the following: I earnestly recommend that John F. Pughe, skilled workman at \$4.00 per day, be promoted to the position of clerk, Subdivision 2 of Schedule C, at a salary of sixteen hundred dollars per annum to take effect May 1st, 1908. I consider this a most meritorious case, and, in view of my shortage of clerical assistance and the duties performed along that line by Mr. Pughe, I trust you can

MINT OF THE UNITED STATES AT DENVER.
MELTER AND REFINER'S DEPARTMENT

Superintendent - 2

see your way clear to present it to the Director with our approval.

Respectfully,

Jo. W. Milburn

Melter and Refiner

MOF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

April 11, 1908.

Hon. Frank M. Down
Superintendent. S. Mint,
Denver.

Sir:

Mrs. Wilson's health necessitates her removal to a lower altitude for a time, & as the railroads have granted special rates to the Pacific coast on account of the naval demonstration at San Francisco early in May, I feel that I would like to take advantage of this opportunity to give her a rest at sea-level, as well as to satisfy a long-standing desire to visit the San Francisco mint that I might look into the details of the Melter and Refiner's work there and get the benefit of their experience.

I therefore request a leave of absence for thirty days, commencing on or about the 25th inst.

Respectfully,

John Wilson
Melter and Refiner.

10/20/08

REFINERY

1. Product: a. Gold	110,420.454	Fine ozs.
b. Silver	148,154.478	" "

Total	258,574.932	" "
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2. Costs:	Totals	Cost per oz.
a. Labor	1400.82	.00549027
b. Crucibles	87.40	.00034197
c. Acids	431.86	.00168063
d. Supplies	136.98	.00077085
e. Mitts & gloves	48.34	.00018914
f. Chemicals	30.00	.00007823
g. Sweeps cellar	0.00	.00000000
h. M. & R. General	156.94	.00061406
i. Fuel	173.20	.00068551
j. Power	552.47	.00212167
k. Repairs	122.56	.00050302
l. Light, ventilation	80.00	.00031301
m. Incidentals	3.65	.00001422
n. Assays	200.90	.00078607
o. Sick leave, vacation & holidays	73.69	.00028833
Totals	5546.59	.01397890

3. New Equipment

343.40

Total expense

3889.99

4. Average cost per fine ounce since July, 1907, .01373857

5. Crude bullion refined, approx., 384,595.422 .00922161

6. Average cost per gross ounce since July, 1907 .03965188

Mch/08

INGOT MELTING ROOM

1. Amt. of bullion melted:	A. Gold, std. ozs.	185,771.25
	B. Silver "	727,892.82
	Total	<u>913,664.07</u>

2. Amt. good ingots:	a. Double eagles	176,123.23
	b. Half dollars	461,708.40
	c. Dimes	246,928.95
	Total	<u>708,635.35</u>
		884,758.58

3. Cost of ingots:	Gold		Silver		Total	
	Total	Per oz.	Total	Per oz.	Total	Per oz.
a. Labor	159.33	.00000435	688.20	.00097116	847.53	.00095756
b. M.&R. Gen'l	39.50	.00016749	127.44	.00017983	156.94	.00017730
c. Mitts, gloves	8.12	.00004610	26.50	.00003739	34.62	.00003211
d. Crucibles	30.08	.00011400	60.00	.00008466	80.08	.00009052
e. Sweeps cellar	60.40	.00034294	360.88	.00036214	321.28	.00036312
f. Supplies	23.52	.00013354	79.85	.00011268	103.37	.00011687
g. Fuel	43.20	.00024522	174.80	.00024337	218.00	.00024637
h. Power	10.11	.00005740	43.66	.00006161	53.77	.00006977
i. Light, vent'l'n	3.76	.00002134	16.24	.00002291	20.00	.00002226
j. Repairs	8.32	.00004723	35.93	.00005070	44.25	.00005000
k. Incidentals	0.23	.00000130	0.97	.00000136	1.20	.00000132
l. Sick leave, &c	12.81	.00007273	55.38	.00007215	68.19	.00007200
Totals	379.38	.00215406	1569.85	.00221531	1949.23	.00222031
m. Alloy copper	197.30	.00112023	334.94	.00047265	532.24	.00060115
Totals, including Alloy Cop.	576.68	.00327429	1904.79	.00268796	2481.47	.00280437

4. New Equipment

58.40

Total expense

\$2539.87

5. Percentage of good ingots to amt. bullion melted:	a. Gold	94.8
	b. Silver	97.3

6. Average cost per ounce of ingots for nine months:

	Gold	Silver	Total
a. Excluding alloy copper	.00224373	.00236975	.00233808
b. Including " "	.00342655	.00335105	.00337002

7. Costs distributed as follows:	a. Double Eagles	576.68
	b. Half dollars	1247.64
	c. Dimes	<u>657.15</u>
	Total	\$2481.47

DEPOSIT MELTING

Power	14.62
Fuel oil	84.24
Repairs	6.50

MCH/08

SWEEP CELLAR

1. Product:	a. Gold, std. ozs.	50.754	
	b. Silver "	521.076	
	c. Tailings, avoird. lbs.		13,176

2. Costs:

a. Labor	187.60
b. Power	21.08
c. Light & Ventilation	35.41
d. Supplies	6.01
e. Repairs	6.05
f. Incidentals	0.25
g. Vacation, sick leave	0.90
Total	<u>321.29</u>
h. New equipment	<u>26.24</u>
Total expense	<u>347.53</u>

3. Tailings:

a. Amount avoird. lbs.	13,176	
b. Contained gold, std. ozs.		21.181
c. " silver "		<u>157.830</u>

4. Percentage of extraction:

a. Gold	70.5
b. Silver	76.7

5. All charged to Ingot room.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

April 21, 1908.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

Under date of January 7, 1908, I addressed to you the following communication regarding our Sweeps Cellar:

Sir:

I have the honor of directing your attention to a matter of vital importance regarding our Sweeps Cellar. I understand the contract recently awarded to Wm. Duthie to make an inside entrance from the Mint building to the Sweeps cellar includes also the closing up of the alley-way entrance at the south end of the Sweeps cellar. This alley-way entrance was originally designed for the purpose of placing therein a small hoist or elevator to raise the tailings from the Sweeps cellar up to the alley-way for loading into the wagons for shipment, as well as for the purpose of ventilation. The hoist has never been installed, and so we have had to carry all the tailings up two flights of steps to reach the wagons. However, said alley-way entrance has been a very important factor in our operations in the Sweeps cellar as a ventilator; we dry all our tailings on a steam drier and under the most favorable conditions obtaining at present it is far from being a pleasant place to work in, as we only have one other opening, and that is at the southeast corner, the entrance door. Some time ago, I recommended that a grille be placed across the face of the archway forming the entrance to said alley-way opening as a measure of safety, and I now renew said recommendation, and very earnestly protest against the closing of said alley-way opening, or making any change thereof, other than the placing of said grille. I also recommend the installation of said elevator so as to do away with the laborious and expensive carrying by hand of the tailings up two flights of stairs to the alley.

On at least two previous occasions I have recommended certain changes in the Sweeps cellar, regarding which no action has been taken, and it seems proper for me to refer to them in this communication. The size of our Sweeps cellar is 37 by 44 feet, with six concrete pillars each two feet square supporting the roof, and the lighting of the room is entirely by artificial means, as daylight cannot

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

enter anywhere. This room is not large enough for our purposes, in fact not large enough to complete the installation of our equipment, and until we get more space it would be very difficult to install the concentrating table necessary to complete our system of extraction.

I recommend that the Sweeps cellar be extended in length to the North twenty feet; and that the present dirt roof be entirely discarded and be replaced by a suitable concrete arch roof, with the necessary provision for light and ventilation. And if the roof cannot for any reason be changed in the near future, then six-inch iron columns should be substituted for the large concrete pillars.

The inside passage-way, now under contract, is of such nature that it can be used for the passage of the employees, but not for the transportation of sweeps, as there are two flights of steps to go down, one at the exit of the main building and the other at the entrance to the Sweeps cellar. My idea was to have said passage-way extend due west from its exit in the main building to the west line of the Sweeps cellar and then turn south along the west wall (extended) of the Sweeps cellar a distance of 22 feet, thus giving us a distance of 76 feet in which to drop 7 feet, which would permit of the passage-way being built without any steps, and on such a grade that we could easily truck down the sweeps from the main building, which would be quite sufficient as the tailings would be removed by the alley-way exit.

Trusting that I have made my views clear in a general way, and assuring you that it will be a pleasure to present the whole matter in detail if desired, I remain, etc.

Under date of April 16, 1908, the Supervising Architect, in communication to the Custodian relating to the Sweeps cellar, answers the foregoing letter by saying, among other things, the following:

"In this connection you are advised that it is not deemed best to omit the closing up of the opening covered by doors in the alley roadway as required by the specification, such opening being considered extremely dangerous."

I certainly consider it an official duty to further protest against and respectfully oppose the attitude of the Supervising Architect as above expressed, with reference to closing said al-

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent - 3

entrance; I suppose the reason given to be the only objection, as I have never heard of any other; and if that be true, I think the objection must be based upon a misunderstanding of the facts. And the danger must be considered as running against the main building and not the Sweeps cellar itself, because I called attention to the danger to the Sweeps cellar on at least two previous occasions, the first time over two years ago, and no action was ever taken with reference to it. Now as to the facts in their relation to danger to the main building: The exit from the main building to the passage-way is to be secured by a suitable grille, and the entrance to the Sweeps cellar at the other end of the passage-way is to be likewise secured by a similar grille (as shown on Drawing No. 29), and that is the protection between the Sweeps cellar and the main building. Now, as to the Sweeps cellar itself, there are two openings, the doorway at the southeast corner, through which we enter and carry all of our sweeps and supplies down two flights of steps; and that opening is protected by a suitable grille. The other opening is the one now sought to be closed, and I will try to describe it. It consists of an archway opening off the south end of the cellar, the bottom of it being a continuation of the cellar floor. It is nine feet wide, the center of arch is six feet and three inches high, and the arch extends south five and one-half feet, and the balance of the way to the south wall five feet is opened up to the alley-way and is at present secured by heavy iron doors lying flat, level with the alley,

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 4

and secured underneath by suitable fastenings. This arch, floor, and walls are of heavy concrete; and my recommendation of two years ago, and since, was that a grille be placed across the opening of said archway, and if this were done, that entrance would be equally as secure as the doorway at the southeast corner, and the "extremely dangerous" feature would certainly be eliminated. The contract for the passage-way awarded to Wm. Duthie, included in its terms also the closing permanently of said alley opening, and I understand that, in response to my letter of January 7, 1908, above set forth, you recommended that that part of the contract be cancelled; and the letter of the Supervising Architect of April 16, hereinbefore referred to, is the only advice you have received with reference to the matter. Mr. Duthie's contract expired on April 1st, and no objection having been made to your recommendation for the cancellation of the part of said contract referred to, materials have been purchased for the building of an inexpensive chain lift in said archway for the raising of our tailings to the roadway above, and we now have sacked, waiting the installation of said lift, more than twenty-two tons of tailings; and if said alley opening is closed and we are prevented from putting in said lift, then the said twenty-two tons of tailings now ready, together with all produced in the future, must be carried up two flights of steps to the roadway above, and, owing to the fact that quite a number of the employees in this department have not the physical strength to assist in said work, it

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 5

seems unfair to impose it upon the others, especially when we can so readily, cheaply, and safely do away with it entirely. Our Sweeps cellar, as it ^{is} ill-adapted to our work, it is not large enough, is studded with concrete pillars two feet square, and at present has no easy or economical way of either getting materials in or out of it, and I most earnestly protest against further disadvantages being heaped upon us.

very respectfully,

Joseph M. Wilson

Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

April 21, 1908.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

Section 25, Article 29, of the new regulations is the same as Section 27, Article 29 of the old regulations; we have never made any report under that section, nor have we been provided with any blanks for such purpose. I take pleasure in presenting a statement, under said section, for the month of March, 1908:

Bullion operated upon,	Gold,	185,771.25	std. ozs.
"	"	"	"
"	Silver,	727,892.82	" "

Apparent wastage,	Gold,	68.86	" "
"	"	"	" "
"	Silver	461.87	" "

All ingots.

The amount of bullion operated upon is also included in our monthly cost report.

I would be pleased to have the regular blanks provided for these reports, if they can be obtained.

Very respectfully,

John Milson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

April 30, 1908.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

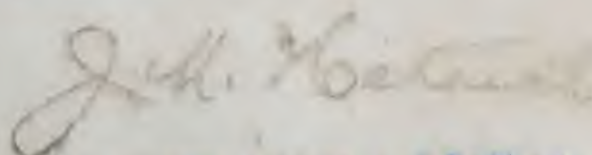
Sir:

I beg to report that there are tailings in our Sweeps cellar
ready for delivery, as follows:

154 Sacks of Refinery sweeps

317 " " Ingot "

Respectfully,



Assistant Melter and Refiner.

MELTERS AND REFINERS OF BULLION BALANCES.

Mint of the United States at DENVER

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of April, 1908.

GOLD.

Received	Balance	Apr. 1/08	STANDARD OUNCES.			Delivered	STANDARD OUNCES.		
			1	19	1		1	19	1
Contained in Gold Deposits			442	801	524	Ingots	328	341	530
Contained in Silver Deposits			71	531	241	Bars, Fine			
Contained in			7	282	067	Bars, Standard			
Clippings, blanks, etc.			123	917	410	Bars, Unparted			
Con'd coin			5	624	580	Bars			
						Sweeps			
			651	156	822	Balance	322	815	232
						Apr 11 30, 1908	651	156	822

SILVER.

Received	Balance	Apr. 1/08	STANDARD OUNCES.			Delivered	STANDARD OUNCES.		
			1	19	1		1	19	1
Contained in Gold Deposits			235	351	83	Ingots	279	109	00
Contained in Silver Deposits			9	267	44	Bars, Fine			
Contained in			25	758	25	Bars, Standard			
Clippings, blanks, etc.			32	361	85	Bars, Unparted			
Con'd coin			42	516	95	Bars			
						Sweeps			
			1	395	276	Balance	1	116	167
					32	Apr 11 30, 1908	1	395	276

CORRECT:

MAY 1

1908.

Superintendent.

John H. ...
Acting
Melter and Refiner

M.I.N.V.

Denver

Melter and Refiner's

April, 1938

Borst, St. Geo.	1			Leave
Bush, W.M.	1			"
Derate, W.M.	4			"
Howard, M.	3			Sick
Morrison, H.C.	2			Leave
O'Brien, S.S.			30	"
Pugh, J.P.			30	"
Schell, E.P.	1	1		"
Smith, E.S.		1		"
Spencer, E.N.	2	2		"
St. John, F.		3		"
Stoddard, X.T.	1	3		"
Teggett, E.S.	1	1		"
Whitaker, E.R.	1		30	"
Whitaker, E.R.	1	7	30	"
Wirth, E.P.				

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

May 2, 1908.

Memorandum of bar received from Superintendent, March 25, 1908:

Deposit Melting Room.

Melter and Refiner's Experimental No. 25, Sweeps Cellar Retort.

Gross wt., 130.70 ozs. Fineness, Au., .512-1/2; Ag., .434

Standard ozs., " 74.426 " 63.02

Respectfully,

Acting Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

May 5, 1908.

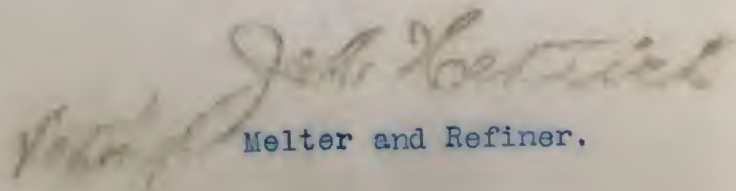
Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

Referring to the letter of the Director of the Mint, of date May 2, 1908, relating to samples of forms for the register of deposits received by the Melter and Refiner's department, I beg to make the following statement:

Inasmuch as this department keeps no records of values of deposits, the amended form No. 472 would not be suitable for use in this office. I take the liberty of submitting herewith a sample form which exactly meets our requirements, and which is much better than amended form No. 472, for our use in all particulars. The new sample differs in no essential respect from the one formerly submitted, but is more carefully ruled and arranged. I return herewith the samples attached to the Director's letter.

Very respectfully,


Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER.

MELTER AND REFINER'S DEPARTMENT,

May 5, 1908.

Hon. Frank M. Downer,
Superintendent U. S. Mint,
Denver.

Sir:

I beg to submit the following list of supplies, estimated to be needed by the Melter and Refiner's department during the fiscal year beginning July 1, 1908:

Graphite goods:

Crucibles, Dixon's No. 80 Mint Special	600
" " No. 14	25
Cups, #3 heavy ,	200
" #4 "	250
" #5 "	50
Covers for #80 Mint Special Crucibles ,	100
2 inch rings for ditto	275
4 " " " "	100
Gold stirrers, round, Mint special for gold	100

Fire clay goods:

Fire brick, standard	4000
" " splits	200
" " soaps	200
Fire clay	6000 [#]
Quarter slides (S-170)	1000
Furnace bodies (S-163-A,B,C,D)	24 sets
Top tiles (S-163-G)	80
Hood tile, rights	24
" " lefts	24
" " tops	24
Pedestals, large	110
20 gm. clay crucibles , "	300
40 " " "	200
4 inch scorifiers	100
2-1/2 inch "	200
6 inch muffles	3

MINT OF THE UNITED STATES AT DENVER.

MELTER AND REFINER'S DEPARTMENT.

May 5, 1908.

Hon. Frank M. Downer,
 Superintendent U. S. Mint,
 Denver.

Sir:

I beg to submit the following list of supplies, estimated to
 be needed by the Melter and Refiner's department during the fis-
 cal year beginning July 1, 1908:

Graphite goods:

Crucibles, Dixon's No. 80 Mint Special	600
" " " No. 14	35
Cups, #3 heavy ,	200
" #4 "	250
" #5 "	50
Covers for #80 Mint Special Crucibles ,	100
2 inch rings for ditto	275
4 " " "	100
Gold stirrers, round, Mint special for gold	100

Fire clay goods:

Fire brick, standard	4000
" " splits	200
" " soaps	200
Fire clay	6000 [#]
Quarter slides (S-170)	1000
Furnace bodies (S-163-A,B,C,D)	24 sets
Top tiles (S-163-G)	80
Hood tile, rights	24
" " lefts	24
" " tops	24
Pedestals, large	110
20 gm. clay crucibles ,	300
40 " " "	200
4 inch scorifiers	100
2-1/2 inch "	200
6 inch muffles	3

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent - E

Acids and Chemicals:

Hydrochloric acid, commercial (22° Be)	30	ton
Nitric acid, commercial, free from chlorine, (38° Be)	20	"
Sulphuric acid, commercial (66° Be)	6	"
Ammonium hydrate, commercial	500	lbs
Hydrochloric acid, C.P.	100	"
Nitric acid "	100	"
Sulphuric acid "	50	"
Ammonium hydrate "	100	"
Potassium cyanide "	10	"
" " commercial	10	"
" carbonate "	10	"
Sodium " C.P.	10	"
Potassium nitrate "	10	"
Hydrogen peroxide	16	"
Phenol Sodique	10	"
Copper sulphate	100	"
Sulphate of iron	8	ton
Crushed rock salt	8	"
Gelatine, pure	400	lbs
Magnesite	100	"
Ammonium chloride	100	"
Litharge, C.P. ,	25	"
Test lead "	25	"
Zinc, C.P.	10	"
* Zinc in slabs, commercial..99%.pure	8	ton
Mercury	225	lbs
Sodium metal	3	"
Sodium hydrate, commercial	25	"
" " C.P.	5	"
Potassium hydrate, commercial	5	"
Stannous chloride, C.P.	10	"
Hyposulphite of soda, commercial	25	"

Fluxes:

Borax glass, ground	3	ton
Bicarbonate of soda	6	"
Nitre	800	lbs
Bone ash	400	"
Pulverized charcoal, MBXX, for gold	10	bbl
" " MBXX " silver	20	"
* Cryolite, Greenland	200	lbs
Silica	300	"
Sand, screened	5	ton

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent - 3

Cloth goods:

* Aprons	50 doz.
* Sleeves	50 doz pre
* Unbleached muslin	10 bolts
* Cheese cloth	35 "
* Aprons, asbestos covered,	15
Extra heavy striped bed ticking	1 bolt
12 oz. white duck, 36" wide	50 yds.
* Carpet mitts	1100
* Asbestos "	100

Mitts, Gloves

* Buck gloves	410 pre.
* Buck mitts	24 "

Rubber goods:

* Rubber gloves, black, 4 inch	6 doz pre
* " " white 9 "	10 " "
* " gauntlets, heavy, full sleeve, 22 inch	6 pre.
" tubing, medium wall, 1/8" to 1-1/2"	50 lbs.
" " heavy " " "	50 "
" stoppers, assorted ,	25 "

Earthenware and glass goods:

1 gallon china pitchers ,	1 doz
4 " earthenware pitchers	1 "
12 inch china soup plates	1 "
8 " " " "	1/2 "
6 " " " "	1/2 "
Glass tubing, assorted sizes	20 lbs.
" rods " "	10 "
" test tubes, 8"x 1"	5 doz
" " " assorted	6 "
" beakers, assorted	6 "
" flasks, "	4 "

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent - 4

Miscellaneous supplies:

Wood stoppers, assorted sizes	2 lbs
10 inch extra heavy seamless tin pans	1/2 doz
Brass wire screen, 20, 30, 40 mesh	90 sq.
Nickel plated forceps, fine point, non-magnetic	6 pr
Ball pein machinist hammer, 2 lb.	3
Garden hose, 3/4"	100 f
Respirators	1 doz
Oilers, brass, 1 pint	1 "
"Smooth on" cement	2 lbs
Talcum powder	25 "
Extra heavy galvanized iron wash tubs	2
" " " " " water buckets	3
Common lumber	3000 ft
Boiler plate steel	120 sq.
14 inch Bastard files	2 doz
12 oz. wide mouth bottles	1/2 "
6 " " " " "	1/2 "
Glass troughs, 12-1/2x8x6	1/2 "
* Light machine oil, for hydraulic press ,	1 bbl
* Machine oil	2 gals
* Twine	100 lbs
Dust brushes	2-1/2 doz
Floor "	1-1/2 "
Fibre "	1-1/2 "
Sledge handles	1/3
Pointing trowels	1/6
Thread, #25 Linen	1/2
8 inch horn spoons	1-1/2
Screen posts for Elspass mill	1
No. 3 long handle, sq. point shovel	1/6
" " short " " " " "	1/6
12 inch monkey wrench	1/12
8 " " " " " " "	1/12
5/16 x 2 flat screw head stove bolts	4
16 inch gold pan	1/12
16 " amalgamating pan	1/12
1/2 " cotton rope	50 ft
Hoffman's extra heavy clamps	2 doz
Hard drawn copper rods, 1/2 inch square	300 ft
" " " " " 1/2 " x 1 inch	300 "
* Lard oil	4 bl
Iron turnings	1 to
Grain alcohol	5 ga

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent - 5

Miscellaneous supplies (continued)

Asbestos cement	25 lbs.
1/2 inch round aluminum rods, 36" long	3 doz
Sheet aluminum	3 lbs
* Blacksmith aprons, muleskin, with bib	1 doz
* Towelling	100 yds.
Sheet lead	8 tons
Fine gold molds, 10-1/2x5-3/4x4.	1-1/2 doz
Brass screen, 60, 80 mesh	25 sq.ft.
* Hard rubber rods, special	500

* Samples to accompany all starred articles.

Very respectfully,

J. H. Hestrich
Acting Melter and Refiner.

John Hestrich

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 5

Miscellaneous supplies: (continued)

Asbestos cement	25 lbs.
1/2 inch round aluminum rods, 36" long	3 doz.
Sheet aluminum	3 lbs.
Blacksmith aprons, muleskin, with bib	1 doz.
Towelling	100 yds.
Sheet lead	8 tons
Fine gold molds, 10-1/2"x5-3/4"x4"	1-1/2 doz.
Brass screen, 60, 80 mesh	25 sq.ft.
Pure gum pads for copper plate dressing, 4"x6"	1/4 doz.
" " " " " " 6"x6"	1/4 "
Hard rubber rods, special	500

* Samples to accompany all starred articles.

Very respectfully,

John H. Hottel
Acting Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

• May 14, 1908.

Hon. Frank M. Downer,
Superintendent, U.S. Mint,
Denver.

Sir:

Referring to the inquiry in the Director's letter of the 11th inst., in which he states that he would like to be informed of the object of the Refinery Charges, as shown on the sample sheet for the Melter and Refiner's Register of Deposits, I beg to make the following statement:

The Refinery charges are not essential to the completeness of the record. The column "Refinery Charges" was included that we may have a line on the earnings of the refinery as the bullion is sent thereto.

Very respectfully,

John Herbert
Acting Melter and Refiner.

Apl/08

REFINERY

1. Product:	a. Gold	120,917.05	Fine	ozs.
	b. Silver	151,046.40	"	"
	Total	271,963.45	"	"

2. Costs:	Totals	Cost per oz.
a. Labor	1500.88	.00551868
b. Crucibles	105.80	.00038902
c. Acids	427.50	.00157190
d. Supplies	240.23	.00088331
e. Mitts, gloves	66.12	.00024312
f. Chemicals	20.00	.00007353
g. Sweeps cellar	0.00	.00000000
h. M. & R. Gen'l	208.34	.00076605
i. Fuel	190.32	.00069979
j. Power	595.28	.00218882
k. Repairs	140.29	.00051584
l. Light, ventilation	95.00	.00034931
m. Incidentals	0.99	.00000364
n. Assays	222.49	.00081808
o. Sick leave, vacation, &c.	33.15	.00012189
Totals	3846.39	.01414304

3. New Equipment	378.28
Total expense	4224.67

4. Average cost per fine oz. since July, 1907,	.01378776
5. Crude bullion refined, appx. 407,505.697, gross	.00943886
6. Average cost per gross oz. since July, 1907,	.00959866

May 14, 1908

INGOT MELTING ROOM

1. Amount of bullion melted:	a. Gold, std. ozs.	341,309.890
	b. Silver "	558,592.440
	Total	899,902.330

2. Amt, good ingots:	a. Double eagles	328,501.460
	b. Half dollars	182,093.100
	c. Quarter "	327,250.800
	d. Dimes	40,320.150
	Total	878,165.510

3. Cost of ingots:	Gold	:	Silver	:	Total	:
	Total :	Per oz. :	Total :	Per oz. :	Total :	Per oz
a. Labor	271.60	.00082678	674.76	.00122758	946.36	.00107765
b. M. & R. Gen'l	59.79	.00018200	148.54	.00027023	208.33	.00023723
c. Mitts, gloves	11.75	.00003576	11.75	.00002137	23.50	.00002676
d. Crucibles	29.28	.00008913	50.60	.00009205	79.88	.00009096
e. Sweeps cellar	0.00	.00000000	0.00	.00000000	0.00	.00000000
f. Supplies	51.38	.00015640	82.52	.00015012	133.90	.00015247
g. Fuel	74.80	.00022770	121.60	.00022122	196.40	.00022364
h. Power	17.42	.00005302	43.28	.00007873	60.70	.00006912
i. Light, vent'l'n	7.13	.00002170	17.72	.00003223	24.85	.00002829
j. Repairs	31.33	.00009537	77.84	.00014161	109.17	.00012431
k. Incidentals	0.00	.00000000	0.00	.00000000	0.00	.00000000
l. Sick leave, &c	8.22	.00002502	20.45	.00003720	28.67	.00003264
Totals	562.70	.00171292	1249.06	.00227240	1811.76	.00206311
m. Alloy copper	348.54	.00106099	806.41	.00146709	1154.95	.00131518
Totals, including Alloy Cop.	911.24	.00277391	2055.47	.00373950	2966.71	.00337830

4. New Equipment

Total expense

2999.19

5. Percentage of good ingots to amt. bullion melted:	a. Gold,	96.2
	b. Silver	98.4

6. Average cost per oz. of ingots for 10 months:	Gold	Silver	Total
a. Excluding alloy copper	.00216733	.00236135	.00231018
b. Including "	.00333262	.00338455	.00337086

7. Costs distributed as follows:	a. Double eagles	911.24
	b. Half dollars	680.94
	c. Quarter "	1223.74
	d. Dimes	150.79
	Total	\$2966.71

SWEEPS CELLAR (Not operating)

1. New equipment	22.25
2. Repairs	2.47
total expense	24.72

DEPOSIT MELTING

Power	16.62
Fuel	83.20
Repairs	7.50

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

May 15, 1908.

Mr. C. M. Gorham,
Melter and Refiner,
U. S. Mint, San Francisco.

Dear Sir:

Yours of the 12th inst. at hand, asking for leaves of
Forms 871 and 869. Herewith enclosed are the leaves asked for.

Very respectfully,

J. H. Harkness
Acting Melter and Refiner.

J-H.E. 11
107

MINT OF THE UNITED STATES AT DENVER.
MELTER AND REFNER'S DEPARTMENT.

May 26, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver, Colo.

Sir:

The following are the weights and dimensions of graphite goods as per our estimate:

No. 80 Mint Special Graphite Crucible

Weight, 616 ozs. Troy

Height, outside, 16-3/4 in.

" inside, 15-1/4 "

Diam. outside, top, 12 in.

" inside, " 9-3/4 in.

" outside, bottom, 8 "

" inside, " 6-1/2 "

Greatest inside diam., 10-1/2 in., 4 in. below top

" outside " 12-3/4 " " " " "

No. 14 Graphite Crucible

Weight, 127 ozs. Troy

Height, outside, 8-1/2 in.

" inside, 7-1/2 "

Diam., outside, top, 6-3/4 in.

" inside, " 5-1/2 "

" outside, bottom, 5-1/2 in.
" inside " 3-1/2 "

MINI OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.


Downer - 2

No. 14 Graphite Crucible (cont'd)

Greatest inside diam., 6 in., 3 in. below top

" outside " 7-1/4 in., 3 in. below top.

Graphite Pouring Cups

	No. 3	No. 4	No. 5
Weight	34 ozs. Troy	40 ozs.	48 ozs.
Height outside	4-3/4 in.	5-1/4 in.	5-1/2
" inside	4-1/4 "	4-3/4 "	5
Diam. outside bottom	4-1/4 "	4-1/4 "	5
Top  corners rounding	5-3/4 " side	6 "	6-3/4
cup	9/16 in. thick	9/16 "	9/16

Graphite Stirrer, Special Gold

Weight 75 ozs. Troy

Dimensions as per attached sketch

Very respectfully,

J. H. Hatcher
Acting Melter and Refiner

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

May 27, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

On my recent visit to San Francisco, I spent considerable time at the mint; every possible courtesy was extended to me, and I obtained much information concerning matters in which I was greatly interested. Relating to classification of employees, Mr. Sweeney kindly showed me a communication from the Director, under date of March 3, 1908, which, after establishing the compensation for certain positions, closed with the following paragraph, to wit:

"In the new Civil Service Regulations governing appointments in the Mint Service, which have been agreed upon but not yet printed, all Refinery positions other than Foreman and Melters in Schedule D will be designated as helpers."

Under date of March 26, 1908, I addressed to you a communication regarding the reclassification of employees which I now desire to amend and more fully present in connection with a readjustment of wages, to conform to the schedule in effect at San Francisco for like services.

M. & R. General

Sch. B. Josiah M. Hetrich, Asst. M. & R.

Sch. C, Sub.2 Farnum St. John, Clerk

" C, " 2 John F. Pughe, Clerk

" D, " 3 Enos P. Schell, Helper

No change in compensation in M. & R. General.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

Refinery

Sch. B Benno P. Wirth, Foreman, no change
" D, Sub. 2 Herbert D. Bartlett, promotion from skilled workman
at \$3.75 per day, to assistant foreman at \$5.00
per day.
" D " 1 John E. Crary, skilled workman, \$3.75, to \$4.50 per
day.
" D " 1 Herbert H. Winn, Helper, \$3.25, to skilled workman
at \$4.50 per day.
" D " 3 Burt G. Shields, Helper, \$3.25 to \$4.00 per day.
" " " " George Borstadt, Jr. Do.
" " " " Burt H. Taggart, Do.
" " " " Wm. S. O'Brian, Do.
" " " " Robert G. Arnold, Do.
" " " " George N. Spencer, Do.
" " " " Samuel R. Whitaker, Do.
" " " " Patrick Ryan, Do.
" D " 2 Xerxes T. Stoddard, Melter, \$4.00 to \$4.50 per
" " " " Charles W. Dakin, Melter, no change; gets \$4.50
" " " " George B. Gray, Melter, \$4.00 to \$4.50 per day

Sweeps Cellar

Sch. B. Sub. 2 Elmer S. Smith, Foreman, \$4.00, to \$5.00 per
" 1 Harry R. Whitehead, Helper at \$3.25, to skill
workman at \$4.00 per day.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 3

Ingot Melting Room

Sch. D	Sub. 2	Richard C. Morrison,	Foreman,	no change
"	"	"	"	Denver Chaffee, Melter, \$4.00, to \$4.50 per day
"	"	"	"	Wm. M. Bush, Melter, no change
"	D	"	3	Michael Howard, Helper, \$3.25, to \$3.50 per day
"	"	"	"	William N. Dardis, " " " " " "
"	"	"	"	Joseph H. Spencer, " " " " " "

I earnestly recommend the foregoing increases in compensation as my investigations have convinced me that it is fair and just, not only on account of the work done, but as well on account of the cost of living which in Denver is at least as great as in any Mint city in the United States.

Very respectfully,

Joseph H. Spencer
Melter and Refiner.

MELTERS AND REFINERS OF BULLION BALANCES.

Minut of the United States at D E N V E R

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of May _____, 1908.

GOLD

[illegible]

SILVER.

[illegible]

CORRECT.

June 1 1903.

Superintendence.

Welt und Reiner

REPORT

Denver, Colorado

Melter and Refiner's

May, 1903.

Each, W.M.	1	30	Leave
Dakin, C.W.	1	"	"
Gray, G.B.	1	"	"
O'Brien, W.S.	1	"	"
Paghe, J.F.	1	"	"
Schell, E.P.	1	"	"
Shields, B.G.	2	"	"
Smith, E.S.	1	"	"
Spencer, G.N.	1	"	"
Stoddard, X.T.	1	"	"
Whitaker, S.R.	1	"	"
Whitehead, H.R.	3	"	"
Winn, H.H.	1	"	"
Wirth, B.P.			

SILVER

GOLD

Report of the United States at D F N Y 7 R

180 R.

U. S. MINT SERVICE
Form No. 10
May 2, 1908

At

Denver

Print

of the United States

June 6, 1908.

The following statement shows in standard ounces the total amount of bullion in the different forms delivered to the officers of this Department during the month of *May*, 1908, and the amount of metal returned in ingots, bars, etc., and recovered with the apparent losses and gains:

	WEIGHT OF METAL.			APPARENT GAIN.	APPARENT LOSS.	RECOVERY.		APPARENT NET LOSS.	APPARENT TOTAL GAIN.
	DELIVERED TO THE METALLURGICAL SERVICE.	RETURNED BY METALLURGICAL SERVICE IN INGOTS, BARS.	RETURNED IN TONGS, BARS, COINED, ETC.			FROM ASSAYS.	FROM OTHER SOURCES.		
METAL OPERATED UPON	216,985.420	212,590.480	4348.880		46.060	39.103	112.184		105.227
Gold Ingots									
Silver Ingots	563,495.270	545,431.100	17,580.300		483.870	482.650	1064.520		1068.370
Other Loss									
TOTAL	780,480.690	758,021.580	21,929.180		529.930	521.753	1181.774		1173.597

The above to be a correct statement.

W. H. Milburn

Superintendent

U. S. MINT SERVICE

1	231 1/2	77	236	921	64	475	932 1/2	47
2	230	70	237	923 1/2	59	478	903 1/2	82
3	234	44	238	974 1/2	109	487	915 1/2	76
12	232	55	230	919 1/2	71	491	923	62
14	232 1/2	46	239	920	69	500	914	71
17	210 1/2	33	240	898 1/2	90	501	916	66
21	231 1/2	101	242	882	107	502	897	91
22	273	86	243	914	75	509	924 1/2	68
24	263	102	244	870	119	510	895	102
26	219 1/2	116	247	888 1/2	99	515	883	105
34	221	142	248	902	83	516	909 1/2	76 1/2
40	247 1/2	129 1/2	262	906 1/2	83	522	927	59
41	270 1/2	76 1/2	263	923 1/2	67	523	931	54
47	219 1/2	129	265	913	76	527	914	52
48	249 1/2	102	277	879	111	535	926	61
53	201	60	278	905 1/2	80	526	905 1/2	53
55	266	93	279	910 1/2	74	538	928	56
57	262 1/2	83	282	943 1/2	48	539	848	135
60	265	66	283	929 1/2	56	541	928 1/2	50
76	267	90	286	921	48	545	918 1/2	69
78	280	97	289	895	88	547	937	52
79	203	70	295	899	90	548	894 1/2	93
80	220 1/2	54	296	919	69	555	918	57
87	290 1/2	84	303	905	61	559	930 1/2	54
88	205	84	305	919	46			
89	273	108	307	907 1/2	41			
90	229 1/2	53	311	912 1/2	55			
93	210	46	315	890 1/2	100			
99	265 1/2	52	316	910	56			
100	225 1/2	49	317	936 1/2	40			
105	243	33	320	920	65			
104	245 1/2	16	321	877	116			
107	228 1/2	40	322	920	65			
108	297 1/2	74	323	922	66			
113	276	108	341	908 1/2	68			
114	231 1/2	58	342	899	75			
116	219 1/2	59	343	902	70			
120	237 1/2	95	362	887	81			
129	248 1/2	43	364	880	104			
130	235 1/2	46	365	836 1/2	146			
133	237 1/2	36	377	922	65			
134	232	44	378	895	82			
135	235	34	379	920 1/2	63			
140	201 1/2	56	385	917 1/2	38			
142	210 1/2	71	387	901	59			
143	219 1/2	46	402	921	65			
145	221 1/2	63	403	921	66			
149	235 1/2	49	405	906 1/2	84			
154	203	73	406	907	82			
155	259 1/2	111	407	915	73			
157	234	132	411	927	60			
174	201 1/2	79	412	932 1/2	53			
175	204	124	426	916 1/2	53			
181	205	104	427	898	84			
183	220 1/2	60	428	918 1/2	69			
184	241	42	436	918	62			
191	207 1/2	76	437	924	52			
192	212 1/2	51	443	917 1/2	55			
193	207	69	445	899	67			
202	207	51	448	956 1/2	34			
206	202 1/2	35	449	900	65			
207	209 1/2	61	452	915	60			
211	201 1/2	104	453	902 1/2	64			
214	205	115	455	920	45			
215	202 1/2	73	462	899	77			
216	202 1/2	64	463	896 1/2	76			
217	202 1/2	64	464	896	85			

May/08

REFINERY

1. Product: a. Gold
b. Silver

107,900.55 Fine ozs.
157,792.17 " "

Total 235,692.72 " "

2. Costs:

	Totals	Cost per oz.
a. Labor	1207.61	.00454513
b. Crucibles	105.80	.00039820
c. Acids	391.10	.00147200
d. Supplies	227.00	.00085437
e. Mitts, gloves, aprons	67.05	.00025235
f. Chemicals	20.00	.00007527
g. Sweeps cellar	0.00	.00000000
h. M. & R. Gen'l	208.33	.00078410
i. Fuel	205.73	.00077431
j. Power	597.74	.00224974
k. Repairs	139.71	.00052583
l. Light & Ventilation	70.00	.00026346
m. Incidentals	0.00	.00000000
n. Assays	227.12	.00085482
p. Sick leave, vacation &c	38.68	.00014558

Totals 3505.87 .01319520

3. New Equipment

140.93

Total expense 3646.80

4. Average cost per fine oz. since July 1907 .01372483
5. Crude bullion refined, approximately, 404,812.41 .00266048
6. Average cost per gross oz. since July, 1907 .00949366

June 11/08

May/68

INGOT MELTING ROOM

1. Amount of bullion melted:		a. Gold, std. ozs.	216,988.420
		b. Silver " "	553,927.130
		Total	770,915.550
2. Amount of good ingots:		a. Double eagles	73,067.410
		b. Eagles	139,523.070
		c. Half Dollars	335,355.850
		d. Quar. " "	210,075.250
		Total	758,021.580

3. Cost of ingots:		Gold		Silver		Total	
		Total	Per oz.	Total	Per oz.	Total	Per oz.
a. Labor	226.51	.00106547	679.52	.00124584	906.03	.00119535	
b. M. & R. Gen.	52.08	.00024497	156.26	.00028648	208.34	.00027484	
c. Mitts, gloves	7.75	.00003645	12.00	.00002200	19.75	.00003305	
d. Crucibles	20.08	.00009445	35.20	.00006453	55.38	.00007392	
e. Sweeps cellar	18.73	.00008810	106.20	.00019470	124.93	.00016481	
f. Supplies	35.50	.00016698	74.12	.00013589	109.62	.00014461	
g. Fuel	47.20	.00022202	102.40	.00018774	149.60	.00019735	
h. Power	14.50	.00006820	42.51	.00007793	57.01	.00007590	
i. Light, ventln	5.00	.00002351	15.00	.00002751	20.00	.00002838	
j. Repairs	11.93	.00005611	35.80	.00006563	47.73	.00006596	
k. Incidentals	4.25	.00001999	10.00	.00001833	14.25	.00001879	
l. Sick leave &c	11.49	.00005404	34.50	.00006325	45.99	.00006387	
Totals	455.02	.00214035	1303.51	.00238987	1758.53	.00231969	
m. Alloy copper	224.72	.00105705	647.32	.00118680	872.04	.00115047	
Totals includ- ing copper	679.74	.00319741	1950.83	.00357667	2630.57	.00347031	

4. New Equipment

52.82

Total expense

2683.39

5. Percentage of good ingots to amt. bullion melted:		a. Gold	97.4
		b. Silver	98.4

6. Average cost per oz. of ingots for eleven months:

	Gold	Silver	Total
a. Excluding alloy copper	.00216503	.00236360	.00231097
b. Including " "	.00332110	.00339970	.00337887

7. Cost distributed as follows:

a. Double eagles	184.14
b. Eagles	341.97
c. Half dollars	1288.98
d. Quarter dollars	815.48

Total

\$2630.57

May/08

SWEEPS CELLAR

1. Product:	a. Gold Std. Ozs.	63.962
	b. Silver " "	<u>337.644</u>
	c. Tailings, 7395 avoir. lbs.	

2. Costs:

a. Labor	52.34
b. Power	16.86
c. Light, vent.	21.29
d. Supplies	1.28
e. Repairs	23.50
f. Incidentals	0.00
g. Sick leave &c	<u>9.66</u>

Total	124.93
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h. New Equipment	<u>70.95</u>
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Total expense	195.88
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3. Tailings:

a. Amount avoir. lbs.	7395	12.407
b. Contained gold, std. ozs.		101.886
c. " silver " "		

4. Percentage of extraction:

a. Gold	83.7
b. Silver	76.8

5. Departments charged as follows:

All to Ingot melting room.

INVENTORY

July 1, 1908

Melter and Refiner's Department

R. Office:

- 3 roll top desks
- 1 table
- 4 office chairs
- 1 revolving stool
- 1 - 24 drawer file case
- 1 - 3 compartment wardrobe
- 1 safe
- 2 rugs
- 1 letter press
- 1 " " stand
- 1 " " bath
- 1 Cliver typewriter, cover, and accessories
- 1 Millionaire calculating machine
- 1 Bates numbering machine
- 1 Jupiter pencil pointer
- 2 brass cuspidors
- 2 waste baskets
- 3 desk lamps
- 1 dictionary and stand
- 1 Colt's revolver, .45 calibre
- 1 mirror
- 1 feather duster
- 1 drinking glass
- 1 whisk broom
- 8 ink wells
- 5 cups and sponges
- 10 penholders
- 2 doz. pens
- 4 blue lead pencils
- 1 red " "
- 1 green " "
- 24 black " "
- 5 rulers
- 3 pairs shears
- 4 steel erasers
- 4 rubber "
- 1 bottle paste
- 1 " mucilage
- 1/2 pint ink
- 4 paper weights
- 8 clip-boards
- 6 clips
- 8 rubber stamps
- 2 ink pads
- 18 oil sheets for press book
- 14 blotters " " "
- 50 hand blotters
- 4 pyramids of pins
- 3 pen racks
- 1 book arm-rest

M. & R. Office (cont'd)

4000 letter-heads, unruled
 1500 " " ruled
 900 half " "
 700 " " unruled
 250 letter size manifold paper
 250 legal " "
 2 doz. carbon sheets

1 refinery ledger in use
 1 bullion ledger "
 2 scrap books "
 2 gold bullion books, form 168, 1 in use
 1 silver " " " 183 in use
 1 assayer's account book, stock form, in use
 4 current deposits " " " "
 1 letter press book "
 2 gold vault registers, form 413-A
 1 silver " " " 413-B in use
 1 work-book, form 182
 1 foreman's record of melts, form 469
 1 record of sweeps, form 543
 1 gold deposits sent to refinery, form 338, in use
 4 computing books
 1 requisition book, in use
 1 gold deposit receipt book, in use
 1 " clippings " " "
 2 silver " " " 1 in use
 3 records silver melting, form 181, 1 in use
 2 " gold " " 185, 1 "
 1 refinery gold melts, " 871, in use
 3 memorandum books, stock form "

50 daily statement of operations, form 722
 3500 work of ingot melting " 829
 1000 M. & R. Settlement " 773
 450 anode melt " 896
 400 granulation " 759
 80 monthly statement " 219
 10 daily statement of absence " 546
 80 monthly " " " 644
 55 " " " 65
 1000 melts for parting " 929
 50 requests for leave " 82-E
 100 requisitions " 131-E

Getting Gold 1 vol.
 Metallurgy of silver, gold & mercury, 2 vol.
 Inter. mineralogy & blow-pipe analysis 1 "
 Quantitative chemical analysis 2 "
 Metallurgy of zinc & cadmium 1 "
 The Metallographist 2 "
 Richter's Organic chemistry 2 "
 Caloric power of fuels 1 "
 Electro-chemical analysis 1 "
 Manual of assaying 1 "
 Kent's Mechanical engineer's pocket-book 1 "
 U.S. Geol. Survey No. 54 1 "
 7 reports of Director of mint 7 "
 Annual report production precious metals 1 "

Make-up Room:

2 flat top desks
1 office chair
2 stools
1 No. 12 - 8000 oz. bullion balance
1 " 2 - 4000 " " "
1 clippings pan & counterpoise, #12 balance
1 small pan & " " "
1 " " " #2 "
2 sets weights, .01 oz. to 300 ozs.
2 - 12" electric fans
7 trucks
6 clippings boxes, copper lined
19 ingot " " "
3 " " unlined
15 copper lock boxes
1 hammer
1 set steel numbers
1 dust pan and brush
1 floor brush
1 feather duster
1 - three compartment steel locker
1 vault step

Refinery:

1 water-cooled rolling mill
1 - 200 ton hydraulic press
2 motor generator sets and switch board, large
1 " " " " " " small
1 - 3/4 H.P. motor for gold cells
1 - 1/6 " " in laboratory
1 - 3/4 " " for silver cells
1 - 7-1/2 H.P. motor on elevator
1 - 7-1/2 " " with Chilian mill
1 - 1/4 H.P. exhaust fan for motor
1 - 1/8 " " " " "
1 microscope
1 analytical balance
1 assay "
1 pulp "
1 three foot "
1 cupel furnace
1 crucible melting furnace
1 portable voltmeter
1 " ampmeter
1 pyrometer with Heraeus element
1 Alberine stone top table for weighing
1 " " " " laboratory
1 plate glass hood
1 office desk
2 " chairs
1 book case
Laboratory supplies, consisting of acids, salts and apparatus
Platinum ware--entire list
85 graphite plates
175 porcelain rods
10 " acid jars
6 " filters
2 " jars, small
35 " gold cells

Refinery (cont'd)

23 earthenware silver cells
 1 " acid jar with cock
 2 " supply tanks (silver cells)
 5 " filters
 3 " acid jars
 10 " pitchers
 75 porous cells
 4 Rockwell Eng. Co. melting furnaces
 1 reverberatory furnace
 2 gold boiling furnaces
 109 No. 4 cups
 388 " 3 "
 289 " 2 "
 305 - 4" rings
 287 - 2" "
 46 gold stirrers
 34 flat "
 350 crucible lids
 35 quarter slides
 39 fire brick furnace sides
 11 " " " tops
 16 " " " arches
 8 sets fire brick tile for oval furnace (new style)
 13 tops " " " " " "
 10 pedestals, large
 22 " small
 25 carb. burner tile
 10 fire brick burner tile
 2 dumping tables
 4 pouring benches
 6 furnace hoods
 4 charcoal pans
 2 slag "
 2 cone moulds, large
 4 ash cans
 3 shoe moulds
 36 gold anode moulds
 12 - 500 oz. gold moulds
 12 silver merchant bar moulds
 12 " anode "
 6 " fine, 1000 oz. "
 24 - 250 oz. gold "
 35 ingot boxes
 4 clip "
 4 prs pouring tongs
 1 " ring "
 2 " small bar charging tongs
 1 " stirring tongs
 3 " pick-up "
 1 " crucible "
 4 furnace pokers
 3 cuspidors
 2 mirrors
 Tools, consisting of wrenches, screw drivers, etc.
 7 prs. white rubber gloves
 12 " asbestos mitts
 14 " black rubber gloves
 10 " buck gloves
 15 trucks, large and small
 2 trucks for ingot rolling
 1/2 bbl powdered charcoal
 2 " gran. "

Refinery (cont'd)

200 lbs. zinc
150 " silica
500 " sulphuric acid
700 " nitric "
1500 " hydrochloric acid
400 " iron sulphate
500 " scrap iron
25 gals. lard oil
40 perforated hard rubber baskets
20 hard rubber propellers
1 box for holding fluxes
1 closet for supplies
1 desk, melting room
3 lead lined dipping tanks
2 slag pots
4 smelter ladles
1 silver chloride filter-wood
2 lead lined filters, wood
1 steam shell, silver tank
1 lead lined copper tank
4 lead baskets

Ingot Melting Room

1 topping shears
8 Rockwell furnaces
5 pouring benches
2 dumping benches
28 moulds, double eagle, 2 sets
14 " eagle 1 "
18 " half eagle 1 "
56 " half dollar 4 "
54 " quarter " 3 "
19 " dime 1 set and 1
24 shoe moulds
7 pairs iron tongs, gold bar
2 " " " silver bar
5 " " " pouring
3 " " " gold stirrer
4 " " " floor grate
3 " " " crucible
5 " copper " ingot
1 mould iron, conical, 12"
1 " " " 10"
2 " " " 8"
1 " " " 6
12 sheet iron scoops
12 pokers "
1350 sq. ft. floor grating
3 waste cans, 15x24, round
3 charcoal pans, Russia iron
2 " " sheet "
6 slag pans " "
12 skimming pans " "
2 grease pans " "
8 furnace hoods copper
2 stirring guards
1 stamping bench
1 filing bench
2 " vises

Ingot room (cont'd)

1 case for assay samples
 1 - 4 compartment locker, oak
 1 - 4 " flux bin
 1 water cooler
 1 bench vise
 1 ingot stand, oak, sheet copper top
 2 sets pickling tanks, lead lined
 2 pickling racks, copper
 1 truck, large
 1 truck, small, copper covered top
 1 oil tank, storage for lard oil
 2 bundling presses for clippings
 6 galvanized iron water pails
 12 silver stirrers
 4 trowels
 1 sledge hammer
 " handles
 8 hand hammers
 3 brick "
 2 monkey wrenches, 14"
 1 " " 10"
 1 stillson " 10"
 2 screw drivers
 6 cold chisels
 4 crucible scrapers, steel
 1 crow bar
 2 oil cans, small
 2 extension lights
 2 box screens, 24"x24"
 1 pr. outside calipers
 2 " pliers
 1 magnet, 6"
 1 extension divider, 7"
 2 electric fans
 1 roll top desk
 30,688 lbs. alloy copper
 2 benches for clippings boxes
 1 lead lined sink
 1 mirror
 1 towel roller
 1 chair
 20 granulation copper cups
 1 glass ink well
 10 No. 80 graphite crucibles
 31 No. 14 " "
 10 No. 4 pouring cups
 47 No. 2 " "
 5 - 4" rings
 16 2" "
 2 gold stirrers
 4 floor brushes
 3 hand "
 4 fibre "
 2 wire "
 9 cleaning " brass
 22 prs. buck gloves
 12 asbestos mitts
 44 carpet mitts
 76 aprons
 2 asbestos aprons
 88 prs. sleeves
 1/2 bolt cheese cloth
 30 - 14" flat bastard files
 5 cals. lard oil

1/2 bbl. charcoal
 10 lbs. soda bicarb.
 50 lbs. borax glass
 300 lbs. nitre
 15 sq.ft. screen wire brass, 40 mesh
 85 ft. manila rope, 1/2"

Sweepa Cellar:

1 Elspass mill, complete
 - 15 H.P. motor
 - 2 H.P. motor
 1 #3 centrifugal pump
 1 electric fan
 steel tanks, 16"x4.5'x16'
 1 Pierce amalgamator, complete
 1 copper amalgamating plate, 2'3"x 8'6"
 1 amalgamating pan
 1 gold pan
 1 steam drier, 4'6"x 10'6" x 8"
 1 iron wheelbarrow
 1 piece 40 mesh copper screen, 36"x 60"
 2 prs. rubber boots
 3 galvanized iron pails
 4 tin sample pans
 4 " sampling pans
 1 " sampler
 1 #3 short handle shovel
 2 #3 long " "
 1 steel pick
 15 ft. 1" rubber hose
 1 platform broom
 1 ex. heavy mill broom
 1 qt. copper oil can
 1 small " " "
 1 - 3-1/2 lb. hammer
 1 carpenter hammer
 1 24" T. wrench
 1 10" monkey wrench
 1 16" " "
 2 - 3/4" and 1-1/4" S wrenches
 1 large mill S wrench
 1 iron mortar and pestle
 1 - 3000 lb. Fairbanks scale
 2 - 16" flat files
 1 - 12" round files
 1 yds. heavy bed ticking
 1 lb. metallic sodium
 3 - 10 lb. cans caustic soda
 5 lbs. potassium cyanide
 100 lbs. quicksilver
 6 - 6" large mouth glass bottles
 5 - 4" " " "
 4 - 6" heavy china plates
 2 galvanized iron wash tubs
 1 - 2 pint iron retort
 1 - 4 " " "
 1 - 6 " " "
 350 heavy duck canvas sacks
 100 medium " "
 60 ft. 3" ex. heavy iron pipe
 25 ft. 1/2" asbestos pipe covering
 30 ft. 2" ditto
 1 box assorted pipe fittings
 3 horn spoons

Denver

Walter and Refiner's

, June, 1908

Arnold, R.G.	9		Leave
Bartlett, H.D.	14		"
Borstadt, Geo	9		"
Bush, W.M.	10		"
Chaffee, I.	11	2	"
Crary, J.E.	9		"
Dakin, C.W.	9		"
Dardis, W.I.	11		"
Gray, G.B.	9		"
Hetrich, J.M. (detailed on 11th to San Francisco, official busine..			
Howard, M.	12		Leave
Morrison, R.	10	4	"
O'Brian, W.S.	7		"
Fughe, J.F.	1	1	"
Ryan, P.	1		"
Schell, E.P.	13	1 - 30	"
Shields, B.G.	12		"
Smith, E.S.	5		"
Spencer, G.N.	5		"
St. John, F.		1 30	"
Stoddard, X.T.	6		"
Taggert, B.H.	9		"
Whitaker, S.R.	9		"
Whitehead, H.R.	4	2	"
Winn, H.H.	9	1	"
Wirth, B.P.	1		"

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

July 1, 1908.

RECEIVED of Frank M. Downer, Superintendent of the Mint of the United States at Denver, in redelivery after settlement, June 30, 1908, one hundred and seventy-eight thousand five hundred and eighty-eight and eighty-seven thousandths standard ounces of gold, and three hundred and thirty-three thousand eight hundred and nineteen and twenty-six hundredths standard ounces of silver, itemized as follows:

	Standard Ounces Gold	Silver
Gold and Silver deposits ---	67,533.367	33,010.96
Mint Fine Silver -----		134,161.95
Quaha " " -----		69,589.13
Refinery Settlement, Gold --	65,154.386	4,005.65
" " Silver- -----	17,284.602	82,682.06
" " Copper- -----	1,003.282	
Mass Melts -----	25,989.170	8,243.05
Assayer's Bars -----	379.146	507.36
Gold Ingot samples -----	105.730	
Proof Gold -----	60.778	
" Silver -----		237.66
Experimentals -----	1,062.042	1,381.44
Gold tree -----	15.584	
Totals -----	178,588.087	333,819.26

James Wilson
Melter and Refiner.

U. S. MINE SERVICE.
Form No. 219.
Ed. Feb. 2-06-400--8 x 10 1/2.

MELTERS AND REFINERS OF BULLION BALANCES.

Mint of the United States at Denver

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of June, 1908

GOLD.

Received	June 1 19	STANDARD OUNCES.			Delivered	STANDARD OUNCES.		
		Balance	Contained in Gold Deposits	Contained in Silver Deposits		Ingots	Bars, Fine	Bars, Standard
Balance		272	40	3		79	853	270
Contained in Gold Deposits		40	184	333				
Contained in Silver Deposits		3	333	668				
Contained in			13	791				
Clippings, blanks, etc.		32	348	930			224	292
			489	448				
Surplus at Settlement								
		348	584	889	Balance del'd to Settlement Com'n	269	507	327
						348	584	889

SILVER.

Received	June 1 19	STANDARD OUNCES.			Delivered	STANDARD OUNCES.		
		Balance	Contained in Gold Deposits	Contained in Silver Deposits		Ingots	Bars, Fine	Bars, Standard
Balance		762	5	14				
Contained in Gold Deposits		5	914	475				
Contained in Silver Deposits		14	475	94				
Contained in			7	63				
Clippings, blanks, etc.		44	614	45				
		26	086	70				
Surplus at Settlement		11	438	52				
		865	023	54	Balance del'd to Settlement Com'n	863	972	76
						865	023	54

CORRECT:

July 1

1908

Superintendent.

Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

July 11th, 1908.

Statement of Silver on hand at close of business this day:

Fine silver	200,751.08	standard oz's.
In deposits and settlement bank	11,111.00	" "
Total	189,640.08	" "

Respectfully submitted.

James Milner
Melter and Refiner

MINT OF THE UNITED STATES AT DENVER.

MELTER AND REFINER'S DEPARTMENT.

July 13th, 1908.

Am. Frank M. Pomeroy
Supt. U. S. Mint, Denver, Colo.

Sir:

I have the honor of recommending the appointment
of Arthur B. Harncliffe as a helper in the Ingot
Melting room, to take effect on July 20th 1908.

Respectfully

Jo. W. Wilson

Melter and Refiner

THE MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

July 18, 1908.

Statement of Silver on hand at close of business this day:

Fine silver 203,751.08 Std. 030.

Clippings 10,757.95 " "

In deposits 161,164.44 " "

Total 375,673.47 " "

Respectfully submitted:

John W. Wilson

Melter and Refiner

THE MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

July 25th, 1908.

Statement of Silver on hand at close of business this day:

Fine silver 162,071.15

Silver 85,400.13

Clippings 11,322.56

Spec. coin 15,814.25

In Receipts 170,741.29

Total 445,349.38

Respectfully submitted

For Manager

Walter A. B. Fisher

THE MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

August 1st, 1901.

Statement of Silver on hand at close of business this day:

Fine Silver 122616.61

Ingot 57,027.30

Clippings 7,002.55

Cond. coin 15,459.95

In deposits 221,779.07

Total 436,875.48 Std. 93%

Respectfully submitted:

JOSE W. WILSON

Master Refiner

Mint

Denver

Melter and Refiner's

July, 1908

Arnold, R.G.	14			Leave
Barlett, H.D.	14			"
Bernhardt, G.	14			"
Bush, Wm.	14			"
Chaffee, D.	16			"
Crery, J.H.	14			"
Dakin, G.W.	14			"
Davies, W.M.	14			"
Gray, G.B.	14			"
Hetrich, J.M., Detailed to San Francisco, on annual settlement				
	14		30	Leave
Howard, M.	14			"
O'Brien, W.S.	4	3	30	"
Paghe, J.F.	14			"
Ryan, P.	11	4		"
Schell, E.F.	14			"
Shields, B.G.	14			"
Smith, E.S.	14			"
Spencer, G.N.	22	4		"
St. John, F.	14			"
Stoddard, X.T.	14			"
Taggart, B.H.	14			"
Whitaker, S.R.	1			"
Whitehead, H.R.	17			"
Winn, H.H.	14			"
Wirth, B.P.				

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

August 10, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

Responding to your request of this a.m. that I advise you in detail as to the number of employees in the Refinery and their respective duties, I take pleasure in presenting the following statement:

Our Refinery force consists of fifteen employees, viz.: 1 Foreman, 2 Cell men, 3 Melters, and 9 Helpers; and each has his particular duty to perform, to wit:

The Foreman is given full authority in the Refinery, and is held responsible for the proper conduct of the work.

One of the Cell men has charge of the gold cells on the day shift, and it is his duty to see that they are in proper working order in every way; to put in anodes and take out cathodes as may be necessary; to change the electrolyte when it becomes too foul for economical use, and on such occasions to remove the slimes from the cells. The other cell man has the same duties to perform with the silver cells.

The melting room has four furnaces, three of which are used for regular melting; and each is in charge of a melter; the fourth furnace is used exclusively for making sweats, and is run by the melters in connection with their other work. In the melting room

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

we use three helpers which is as small a number as can be used for a bench crew, and they are kept quite busy all the time, as, in addition to their bench work which is almost continuous (working three furnaces), they do the necessary trucking of material between the refinery vault and the melting room and also operate a small Chili mill for the grinding of various slags. On each night shift we have two helpers, one for the gold cells and one for the silver cells, and their duties consist of putting in anodes, taking out cathodes and keeping the cells operating to their capacity. This leaves us two regular day helpers whose duties are various: they wash the gold and silver cathodes, precipitate solutions, roll cathode ingots, and cut the strips into proper cathode lengths, assist the foreman in delivering fine gold and silver to the Melter and Refiner's vault and receiving therefrom the anode melts; they also get up the refinery supplies (including all acids) from the basement, and in general assist at anything necessary to be done.

With this crew, as you will observe from the duties specified, it is quite necessary that each employee be so constituted that he can work all the time; sickness is hardly permissible, because when an employee is in any way incapacitated, we have to take a man from some other duty and use him as a substitute in the refinery. Fortunately we have a splendid bunch of healthy and intelligent men, and are not called upon often to do any substituting.

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent -- \$

Trusting this furnishes the desired information, I remain,

Respectfully,

James M. Brown

Melter and Refiner.

July/08

REFINERY

1. Product: a. Gold

29,693.31 Fine ounces

2. Costs:

	Totals	Cost per oz.
a. Labor	652.49	.02197431
b. Crucibles	0.00	.00000000
c. Acids	42.11	.00141816
d. Supplies	44.05	.00148349
e. Mitts, gloves aprons	19.75	.00066513
f. Chemicals	0.00	.00000000
g. Sweeps cellar	30.00	.00101032
h. M. & R. Gen'l	125.00	.00420970
i. Fuel	55.20	.00185900
j. Power	226.53	.00762899
k. Repairs	71.89	.00242108
l. Light & vent'l'n	80.00	.00269420
m. Incidentals	11.55	.00038897
n. Assays	116.46	.00392209
o. Sick leave, &c	1195.09	.04024778
Totals	2670.12	.08992328

3. New equipment

278.82

Total expense

2948.94

4. Average cost per fine ounce for fiscal year

.08992328

5. Crude bullion refined, approximately, 32,630.00

6. Average cost per gross oz. for fiscal year

.08183021

P. S. Refinery resumed operations July 20, 1908.

July/08

INGOT ROOM

1. Amount of bullion melted, all silver, Std. ozs.	259,944.13
2. Amount of good ingots, a. Half dollars	24,239.90
b. Quarter "	230,609.65
Total	<u>254,849.55</u>

3. Cost of ingots:	Total	Cost per oz.
a. Labor	306.49	.01202631
b. M. & R. Gen'l	125.00	.00490485
c. Mitts & gloves	13.62	.00053443
d. Crucibles	27.60	.00108299
e. Sweeps cellar	86.51	.00339455
f. Supplies	49.63	.00194742
g. Fuel	60.00	.00235433
h. Power	61.21	.00240180
i. Light & ventilation	20.00	.00078477
j. Repairs	38.58	.00151383
k. Incidentals	0.00	.00000000
l. Sick leave, vacation & holidays	578.34	.02269338
Totals	1366.98	.05363870
m. Alloy copper	81.30	.00319011
Total including alloy copper	1448.28	.05682882
4. New equipment	51.90	
Total expense	1500.18	
5. Percentage of good ingots to amount bullion melted, 98		
6. Cost distributed as follows: a. Half dollars	137.88	
b. Quarter "	1310.40	
Total	1448.28	

P.S. Ingot room resumed operations on July 20, 1908.

July/08

SWEEPS CELLAR

1. Product:	a. Gold, std. ozs.	16.195	
	b. Silver " "	8.73	
	c. Tailings, avoird. lbs.		1891

2. Costs:

a. Labor	41.50
b. Power	5.34
c. Light & ventilation	7.21
d. Supplies	.64
e. Repairs	11.37
f. Incidentals	0.00
g. Sick leave, etc.	<u>69.75</u>

Total	135.81
-------	--------

h. New Equipment	<u>152.11</u>
------------------	---------------

Total expense	287.92
---------------	--------

3. Tailings:

a. Amount, avoird lbs.	1891
b. Contained gold, std. ozs.	10.474
c. " silver "	14.52

4. Percentage of extraction:

a. Gold	60.7
b. Silver	37.5

5. Departments charged as follows:

a. Ingot melting room	86.51
b. Refinery	30.00
c. Helena Assay office	<u>19.30</u>

Total	135.81
-------	--------

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

August 12, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

That you may be fully advised as to the condition of our fine metal supply, which controls the making of ingots, I have the honor of presenting a statement of facts relating thereto, together with my observations concerning a remedy.

On this date we have on hand 59,603.38 standard ounces of fine silver and 104,328.819 standard ounces of fine gold, which is our total stock of ingot making metals. Including the clippings to be returned from the Coiner, this will give us about four days' work on silver and a week's work on gold.

The Refinery is producing about 42,000 standard ounces of fine gold per week, and approximately 46,000 standard ounces of fine silver. Of the latter, however, about 30,000 ounces are used for parting purposes, so that we have available for ingot work from the Refinery product only about 16,000 standard ounces per week of fine silver. At the present time we are working all our silver cells (eight in number) and twelve gold cells; owing to the character of the bullion, we cannot increase the latter. Therefore it is obvious that, unless there be a change in conditions by the latter part of the month, we will be unable to keep the Ingot room operating at its present capacity more than for

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

one-half to two-thirds of the time.

There are three methods of gaining relief: First, if we could procure a sufficient quantity of high grade gold bullion, like the Omaha A. S & R. bars, it would enable us to fine up the bullion on hand so that it would make suitable anodes for the gold cells, and we could then increase the number of cells so that we could produce approximately 80,000 standard ounces of fine gold per week; or, second, if we could get, say, a million ounces of doré bars, so that it would not be necessary for us to use any of our Refinery fine silver for parting purposes, then we could get from the Refinery a sufficient amount of fine gold and silver to keep us going continuously at a moderate pace. Of these two propositions, the first meets with the objection that it would use up our bullion much faster than we receive it and so it would again be only a question of time until we would need more help. The second proposition, however, appeals to me very strongly. If we could procure, say, a million or more ounces of doré bars, it would be the most economical and satisfactory way out of our present dilemma--economical, because it would enable us to be working wholly on original bullion on which charges are collected; and satisfactory, because it will keep our refinery busy and enable us to make a Refinery production sufficient to keep the Ingot room at work at about our present speed.

The third method of securing relief is the purchase of

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

Superintendent - 3

fine silver for ingot work.

Respectfully submitted,

J. W. Milam
Melter and Refiner.

U. S. MINT SERVICE.
Form No. 219.
Ed. Print. 5-25-1901. 8 x 10 1/2.

MELTERS AND REFINERS OF BULLION BALANCES.

Mint of the United States at DENVER

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of August, 1908.

GOLD.

Received	Aug. 1 19	STANDARD OUNCES.			Delivered	August 31, 1908 19	STANDARD OUNCES.		
		Balance	555	489	162		48	815	082
Contained in Gold Deposits		59	666	428	Ingots				
Contained in Silver Deposits		5	074	078	Bars, Fine				
Contained in	Seattle Dep.	186	241	167	Bars, Standard				
Clippings, blanks, etc.		30	101	720	Bars, Unparted				
					Bars				
	Can'd coin		343	520	Sweeps				
	Gold Exchg. bars		35	616			788	163	081
	Helena Sweeps		26	670			836	978	161
					Balance				
			836	978					

SILVER.

Received	Aug. 1 19	STANDARD OUNCES.			Delivered	August 31, 1908 19	STANDARD OUNCES.		
		Balance	441	040	86		371	945	20
Contained in Gold Deposits		8	357	65	Ingots				
Contained in Silver Deposits		25	647	77	Bars, Fine				
Contained in	Seattle Dep.	59	444	14	Bars, Standard				
Clippings, blanks, etc.		113	356	65	Bars, Unparted				
					Bars				
	Gold coin		68	030	Sweeps				
	Gold Exchg. bars			6					
	Helena Sweeps			23					
					Balance				
			685	901	August 31, 1908				
							313	968	01
							685	901	21

CORRECT:

Superintendent.

September 1, 1908.

Receivable
Melter and Refiner

M I N T

D E N V E R

Melter and Refiner's

Aug. 1908

Bartlett, H.D.	3		Sick
Bush, Wm.		30	Leave
Chaffee, D.		4	"
Crary, J.H.	1	1	"
Hetrich, J.M.	4		Official Leave, San Fran. Set'm
Lindhard, J.A.	1		Sick
Pughe, J.F.	10		Leave
St. John, F.	2	4	"
Whitehead, H.R.	2	4	"
Winn, H.H.		1	"

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

September 5, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

For nearly a year, one of our Refinery helpers, Burt G. Shields, has been in such a physical condition that he could not well stand the necessary night work of his position. On April 1st, 1908, I transferred him temporarily to the Ingot melting room (as the wages of all helpers at that time was the same), and he has worked there ever since.

In June following, the Director raised the wages of Refinery helpers to \$4.00 per day, and in our list of names of such Refinery helpers forwarded to the Bureau at that time I included the name of Shields as that was where he properly belonged, and where he had rendered satisfactory service as a workman, and I believed that a change of work for a few months would effect a restoration to such a condition that he could resume his work in the Refinery. But, about July 20, when we first commenced operations in our department after settlement, I questioned Mr. Shields as to his condition, and he informed me that he was some better, but after consulting his doctor he said he did not believe he could resume his old position and perform the required night work of a Refinery helper (the Refinery helpers work in three shifts, changing monthly): so I informed him that

MINT OF THE UNITED STATES AT DENVER,
Superintendent - S MELTER AND REFINER'S DEPARTMENT,

it would be necessary to transfer him permanently to the Ingot room and probably reduce his wages accordingly. He was apparently satisfied with this arrangement, and so I transferred him to the Ingot room, and to fill the vacancy in the Refinery I transferred William N. Dardis from the position of Ingot room helper to that of Refinery helper, informing him that, upon approval by the Director, his pay would be increased to \$4.00 per day, the same as all other Refinery helpers. You no doubt remember our discussion of this matter in the latter part of July, and I now desire to present it officially for your action. Therefore, in the interest of the discipline of this department, as well as fairness to the interested parties and those with whom they are associated in like work, I earnestly recommend:

First, That William N. Dardis be placed permanently upon the Refinery roll as a helper, and that his compensation be increased from \$3.25 to \$4.00 per day;

Second, That Burt G. Shields be transferred permanently from the position of Refinery helper to that of Ingot room helper and, if necessary, that his compensation be reduced from \$4.00 per day to \$3.25 per day; and,

Third, That the transfers and necessary change in wages be approved to take effect on September 16, 1908.

Respectfully,

J. C. Milson
Melter and Refiner.

1. Product:	a. Gold	179,610.86	Fine ozs.
	b. Silver	115,836.36	" "
	Total	294,746.88	" "

2. Costs:	Totals	Cost per oz.
a. Labor	1919.83	.00651348
b. Crucibles	0.00	.00000000
c. Acids	496.43	.00168425
d. Supplies	185.37	.00062891
e. Mitts, gloves, aprons	51.25	.00017387
f. Chemicals	10.00	.00003392
g. Sweeps cellar	132.18	.00061808
h. M. & R. Gen'l	195.56	.00066348
i. Fuel	198.40	.00067311
j. Power	406.53	.00137925
k. Repairs	284.80	.00096625
l. Light & Ventilation	78.00	.00026463
m. Incidentals	0.00	.00000000
n. Assays	285.63	.00096906
o. Sick leave, vacation &c	63.50	.00021543
	<u>Totals</u>	<u>.01478380</u>
	4357.48	

3. New Equipment	<u>70.63</u>
Total expense	4428.11

4. Average cose per fine ounce for fiscal year	.02166070
5. Crude bullion refined, approx. 410,664.70	.01061081
6. Average cost per gross ounce for fiscal year	.01585513

Aug/08

SWEEPS CELLAR

Not operating on sweeps -- making repairs and changes.

1. Product - nothing	
2. Costs:	
a. Labor	166.38
b. Power	6.30
c. Light & Vent.	17.80
d. Supplies	0.00
e. Repairs	165.76
f. Incidentals	0.00
g. Sick leave &c	8.12
	<u>Total</u>
	364.36

h. New equipment	<u>61.10</u>
Total expense	425.46

3. Departments charged as follows:

a. Refinery:	212.73
b. Ingot room	<u>212.73</u>
Total	425.46

Aug/08

INGOT MELTING

1. Amount of bullion melted	a. Gold	225,704.79	std. ozs.
	b. Silver	356,382.95	" "
	Total	582,087.74	" "
2. Amount of good ingots	a. Eagles	219,941.07	
	b. Quarter dols.	347,668.10	
	Total	567,609.17	

3. Cost of Ingots:	Gold		Silver		Total	
	Total	Per oz.	Total	Per oz.	Total	Per oz.
a. Labor	305.09	.00138714	547.12	.00157368	852.21	.00150140
b. M.&R.Gen.	70.00	.00031826	125.55	.00036112	195.55	.00034451
c. Mitts, gloves	9.58	.00004355	8.75	.00002516	18.33	.00003229
d. Crucibles	1.68	.00000763	9.20	.00002646	10.88	.00001916
e. Swp. Cellar	65.22	.00029653	116.96	.00033641	182.18	.00032096
f. Supplies	37.55	.00017072	39.31	.00011306	76.86	.00013541
g. Fuel	53.60	.00024370	86.80	.00024966	140.40	.00024735
h. Power	19.19	.00008725	34.42	.00009900	53.61	.00009444
i. Light & Ven.	7.16	.00003255	12.84	.00003693	20.00	.00003523
j. Repairs	14.44	.00006565	25.89	.00007446	40.33	.00007105
k. Incidentals	0.00	.00000000	0.00	.00000000	0.00	.00000000
l. Sick lv. &c	18.08	.00008220	32.42	.00009324	50.50	.00008896
Totals	601.59	.00273523	1039.26	.00298923	1640.85	.00289080
m. Alloy cop.	188.06	.00085504	178.47	.00051333	366.53	.00064574
Totals including copper	789.65	.00359027	1217.73	.00350256	2007.38	.00353655

4. New Equipment

30.55

Total expense

2037.93

5. Percentage of good ingots to amt. bullion melted: a. Gold 97.4
b. Silver 97.5

6. Average cost per ounce of ingots for two months:

	Gold	Silver	Total
a. Excluding alloy copper	.00273523	.00399364	.00365712
b. Including " "	.00359028	.00442477	.00420162

7. Cost distributed as follows: a. Eagles 789.65
b. Quarter Dollars 1217.73
Total 2007.38

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

September 25, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

Requisition is hereby made for the following blank books and forms for the use of Melter and Refiner's Department during the ensuing ten months:

- 200 - Form 722, Daily Statement of operations (sample attached)
- 1000 - " 773, Melter and Refiner's Settlement "
- 1000 - " 929, Melts for Parting "
- 1 - Form 183, Receipts and Delivery of Silver Bullion,
pages 8x10-1/2, 75 leaves to book.
- 4 - Form 965, Melter and Refiner's Register of Deposits,
pages 10-1/2x16, 80 leaves to book.

Respectfully,

Joel W. Wilson
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

September 25, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

With reference to the recent shipment of graphite goods by J. H. Gautier & Company, we find two of the No. 80 crucibles broken; and the difference in the size of the No. 5 pouring cups from that specified in your communication of May 26th to said company is so great that we cannot use said pouring cups for the purpose for which they were ordered. But, having received them, we can make use of them in our copper furnace, but hereafter cannot receive any more of those dimensions for our regular^{melting} work in the refinery.

Your communication above referred to called for certain dimensions of said pouring cups, the figures of which I here present, the first figures being your specifications, and the second the figures of the goods received.

Weight, 4.8 ozs., Troy; 80-3/4 ozs., Troy
Height outside, 5-1/2 inches; 6-1/8 inches
Height inside, 5 inches; 5 inches
Diameter outside bottom, 5 inches; 5-3/4 inches
Side measurement, 6-3/4 inches; 7 inches
Thickness, 9/16 inch; 11/16 inch
Thickness of bottom of goods received, 1-1/8 inches.

Respectfully,

John Wilson

Melter and Refiner.

U. S. MINT SERVICE
Form No. 219.
Ed. Feb. 2-08-600.-8 x 10 1/2.

MELTERS AND REFINERS OF BULLION BALANCES.

Mint of the United States at DENVER

Gold and Silver Bullion Balances in the Melted and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of September, 1908.

GOLD.

RECEIVED				DELIVERED			
Balance	Contained in Gold Deposits	Contained in Silver Deposits	Contained in Clippings, blanks, etc.	Ingots	Bars, Fine	Bars, Standard	Bars, Unparted
Sept. 1	10						
788	61	4	186	163	728	200	731
186	53			081	091	210	590
Gold exchg. bars				348	76	989	42
Silver "				13	085		
Sweeps bar							
1	094	304	186				
Balance	Sept. 30, 1908	19					
906	972	708					
1	094	304	186				

SILVER.

RECEIVED				DELIVERED			
Balance	Contained in Gold Deposits	Contained in Silver Deposits	Contained in Clippings, blanks, etc.	Ingots	Bars, Fine	Bars, Standard	Bars, Unparted
Sept. 1	10						
313	9	14	27	956	01	80	26
14	139	26	64	841	80	80	80
Seattle Dep.				139	26		
27	383	86	64	038	80		
Con'd coin				646	60		
Gold exchg. bars				21	44		
Silver "				343	17		
Sweeps bar				7	12		
446	572	06					
Balance	Sept. 30, 1908	19					
243	060	86					
446	372	06					

CORRECT:

October 1 1908.

Superintendent.

Melter and Refiner.

Specimen

Mint

DENVER

M. & R.

Sept., 1902

Arnold, R.G.	10			Sick
"			30	Leave
Bartlett H.D.	3	4		Sick
Campbell A.R.	2			Leave
Bush, WM	2			"
Chaffee, D	2			"
Dakin, C.W.	1	1		"
Dardis, W.N.		1		"
Gray, G.B.	2			"
Howard, M.	2			"
Lindhard, J.A.	2			"
Morrison, R.C.	2			"
Ryan, P	8	3		"
Schell, E.P.	2			Without pay
"		1		Leave
"	2			"
Shields, B.G.		4		"
Smith, E.S.		3	30	"
Spencer, G.N.		4	30	"
St. John, F		1		"
Stoddard, X.T.		1		"
Whitaker, S.B.		1		"
Wirth, B.P.				

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

October 7, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

Since the resignation of Mr. Whitehead, my former assistant, in July, 1906, Foreman B. P. Wirth has had entire charge of the workings of our electrolyte refinery; and his success in perfecting old methods and inventing new ones has been splendid. His constant carefulness in preventing losses in handling the precious metals is evidenced by the fact that each year we have had a surplus of both gold and silver from refinery operations. He handles his men so skilfully that every employee in the refinery seems to take a personal interest in its success, there being no dissension of any kind--just faithful, loyal work. He seems to be a genius in electro-chemical methods for the parting of metals, and the beneficial results he has obtained, due wholly to his intelligent and persistent experimentation and research, certainly entitle him to a higher designation than that of foreman.

It is a pleasure for me to place on record my appreciation of his splendid services to the Denver Mint, with the firm conviction that his constant efforts and successes for the betterment of the service should be recognized and rewarded. I therefore most earnestly recommend that he be promoted to the title of "Superintendent of the Refinery," and that his compensation be increased to seven

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Denver - 2

Dollars per day.

Trusting that your personal knowledge of the worthiness of Mr. Wirth will enable you to reach a favorable conclusion on these recommendations, I remain,

Respectfully yours,

John Wilson

Melter and Refiner.

Sept/08

REFINERY

1. Product:	a. Gold	173,857.04	Fine ounces
	b. Silver	147,302.80	" "
	Total	321,159.84	" "

2. Costs:	Totals	Cost per oz.
a. Labor	\$1820.17	.00566748
b. Crucibles	78.00	.00024286
c. Acids	557.41	.00173561
d. Supplies	208.49	.00064917
e. Mitts, gloves & aprons	77.00	.00023975
f. Chemicals	10.00	.00003113
g. Sweeps cellar	0.00	.00000000
h. M. & R. Gen'l	208.33	.00064868
i. Fuel	219.20	.00068252
j. Power	532.95	.00165945
k. Repairs	194.43	.00060539
l. Light & ventilation	80.00	.00024909
m. Incidentals	3.45	.00001074
n. Assays	330.55	.00102923
o. Sick leave, vacation, & holidays	178.65	.00055626
Totals	\$4498.63	.01400744

3. New Equipment

71.21

Total expense \$4569.84

4. Average cost per fine oz. for fiscal year	.01785351
5. Crude bullion refined, approx., 428,766.10	.01049203
6. Average cost per gross oz. for fiscal year	.01321723

SWEEPS CELLAR

1. Product: No work completed, as men were used in other departments most of the month.

2. Costs:

a. Labor	\$92.85
b. Power	15.00
c. Light & ventilation	10.27
d. Supplies	10.10
e. Repairs	47.13
f. Incidentals	0.00
g. Sick leave, etc.	7.85

Total \$182.60

h. New equipment 20.40

Total expense \$203.00

All charged to Ingot Melting room.

Sept/08

INGOT MELTING ROOM

1. Amount of bullion melted:	a. Gold	200,271.75	
	b. Silver	182,768.65	383,040.40
2. Amount good ingots:	a. Eagles		194,890.55
	b. Quar.Dols.	115,310.85	
	c. Dimes	63,580.00	178,890.85
	Total		373,781.40

3. Costs:

a. Labor	\$372.64	.00191204	286.90	.00160377	659.54	.00176450
b. M.&R. Gen.	117.71	.00060398	90.63	.00050662	208.34	.00055738
c. Mitts, gloves	7.25	.00003720	6.75	.00003773	14.00	.00003745
d. Crucibles	25.68	.00013176	18.00	.00006708	37.68	.00010080
e. Swp. Cellar	114.70	.00058853	88.30	.00049559	203.00	.00054309
f. Supplies	29.48	.00015126	26.38	.00014746	55.86	.00014944
g. Fuel	68.40	.00035096	50.80	.00028397	119.20	.00031890
h. Power	24.32	.00012478	18.72	.00010464	43.04	.00011514
i. Light & Ven.	14.12	.00007245	10.88	.00006081	25.00	.00006688
j. Repairs	43.51	.00022325	33.50	.00018726	77.01	.00020602
k. Incidentals	.40	.00000205	.30	.00000167	.70	.00000187
l. Sick leave &c	90.68	.00046528	69.82	.00039029	160.50	.00042939
Totals	\$908.89	.00436359	\$694.98	.00388493	\$1603.87	.00429093
m. Alloy Cop.	113.97	.00058478	59.92	.00033495	173.89	.00046521
Totals incl. alloy copper	\$1022.86	.00524838	\$754.90	.00421989	\$1777.76	.00475614

66.18

4. New equipment

Total expense \$1843.94

5. Percentage of good ingots to amt. bullion melted:	a. Gold	97.3
	b. Silver	97.8

6. Average cost per ounce of ingots for three months:

	Gold	Silver	Total
a. Excluding alloy copper	.00384118	.00418287	.00385516
b. Including "	.00436926	.00461406	.00437489

7. Cost distributed as follows:

a. Eagles	\$1022.86
b. Quar. Dollars	488.16
c. Dimes	266.74
Total	\$1777.76

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

October 23, 1900.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

I have the honor of most earnestly recommending the following increases in compensation of the employees in the Sweeps cellar and Ingot melting room:

I recommend that the compensation of Elmer S. Smith, Foreman of the Sweeps cellar, be increased from \$4.00 to \$5.00 per day, and that of Harry R. Whitehead, helper, be increased from \$3.25 to \$4.00 per day. Both of these men are expert amalgamator and mill men, and outside of government employment I am satisfied can easily command as much or greater wages than here recommended.

In the Ingot room, I recommend that the wages of helpers, Michael Howard, Burt G. Shields, and Arthur R. Campbell be respectively increased from \$3.25 to \$3.50 per day. And, as Denver Chaffee, melter, has now been employed for two and one-half years, at his present work, and particularly as he is the only melter in the Ingot room receiving less than \$4.50 per day, and further on account of his very careful and satisfactory work, I most earnestly recommend that his compensation be increased so as to conform to that of his associate melters, to wit: from \$4.00 to \$4.50 per day.

In view of the fact that our ingot room work has reached such a satisfactory degree of perfectness, due almost wholly to the

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

intelligence and loyalty of its employees, I feel confident you will approve the modest increases hereinabove requested.

By the way, we have not had a condemned melt, or even a re-melt, so far this year.

Respectfully,

J. J. Williams

Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

October 23, 1906.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

I have the honor of calling your attention to the services of Xerxes T. Stoddard, melter and acting foreman of the Refinery melting room (we have no person officially bearing the title of Foreman, because it has been thought better practice to keep the melting room under the direct authority of the Foreman of the Refinery).

Mr. Stoddard succeeded to the position formerly held by Jacob R. Boyle, who was transferred to the Philadelphia mint on August 9, 1907; and Mr. Boyle's compensation was \$5.00 per day. Mr. Stoddard has been a model employee, careful, competent in every way and unusually proficient in looking after his work and keeping a careful detail-record of the melting room operations, so that we may have exact data for our cost reports, etc., this being in part additional to the work performed by Mr. Boyle.

I therefore most earnestly recommend that his compensation be increased from \$4.50 to \$5.00 per day, as he certainly deserves it; and having proven by fourteen months' service that he is a worthy successor to Mr. Boyle, it only seems fair that he should have the same compensation for doing the same or greater work.

MINT OF THE UNITED STATES AT DENVER,

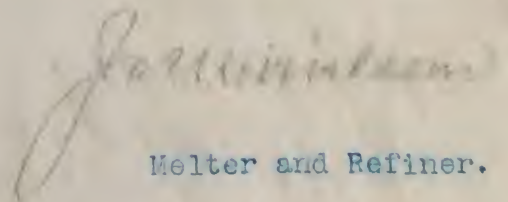
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

And I also respectfully call your attention to George B. Gray, melter in the Refinery melting room; he is an intelligent, careful and loyal workman, and at present is compensated by a wage of \$4.00 per day; he is the only refinery melter receiving less than \$4.50 per day, and as he does the same work as the others and does it promptly and satisfactorily, I certainly think he should have the same pay. I therefore recommend that his compensation be increased from \$4.00 to \$4.50 per day.

Trusting that your personal knowledge of the facts above set forth will assist you in reaching a favorable conclusion on the recommendations made, I remain,

Respectfully,



Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

October 23, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

Touching the communication of the Director, under date of October 20, 1908, relating to crude bullion refined, I have the honor of informing you as to our method of computation: We keep account of the silver anodes used, and their weight in any month is the amount of "Silver crude" reported for that month. As to the "Gold crude," we get that by first ascertaining the average fineness of the gold anodes for the month, and then by taking the fine gold product for the month we can readily approximate the amount of base eliminated, which, added to the "fine" gives us the "gold crude" for that month. As we have never used any Refinery fine gold for alloy purposes, I think our method of arriving at the "gold crude" is approximately correct.

I am satisfied from the Director's letter that our method of computing the "silver crude" is erroneous, and hereafter we will not include in that item any Refinery fine silver used for alloy purposes; however, unless we are otherwise advised, we will pursue our old method of ascertaining the weight of the silver anodes used, but from that weight we will deduct all Refinery silver used for alloy purposes, the balance then being the "silver crude" for the month.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 8

Trusting that this explanation, as well as our succeeding cost reports, will be quite satisfactory, I remain,

Respectfully,

John H. [unclear]
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

October 30, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

Referring to the Director's letter of October 27th, addressed to you, on the subject of reporting refinery costs on crude bullion, would say, we understand his position in the matter, and will be governed accordingly in the future. The form as outlined in his letter to Mr. Slaker, October 23d, page 2, covers the ground fully.

On account of the comparatively small amount of doré bullion received in this institution, we are compelled to use a large amount of fine silver, returned from the refinery, for alloy for silver anode melts. In the month of September, the silver so employed amounted to 95,321.20 standard ounces. It is plain that, if we could have doré to take the place of the refinery silver so returned, the cost of refining per crude ounce would be correspondingly reduced. The amount of gold deposits going over .992 fine is very trifling. In the future, we will take account of such deposits and report same.

Very respectfully,

J. H. Bateman
Acting Melter and Refiner.

MILITERS AND REFINERS OF BULLION BALANCES.

Agent of the United States at

D E F V F R

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of October....., 1908.

GOLD

STANDARD OUNCES.			STANDARD OUNCES.		
Received			Delivered		
Balance			Ingots		
Contained in Gold Deposits			Bars, Fine		
Contained in Silver Deposits			Bars, Standard		
Contained in			Bars, Unparted		
Clippings, blanks, etc.			Bars		
			Sweepings		
Oct. 1	19				
Balance					
Contained in Gold Deposits					
Contained in Silver Deposits					
Contained in					
Clippings, blanks, etc.					
Gold Exchange.					
Oct. 1	19				
Balance					
Contained in Gold Deposits					
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Clippings, blanks, etc.					
Gold Exchange.					
Oct. 1	19				
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Clippings, blanks, etc.					
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Clippings, blanks, etc.					
Gold Exchange.					
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Clippings, blanks, etc.					
Gold Exchange.					
Oct. 1	19				
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Clippings, blanks, etc.					
Gold Exchange.					
Oct. 1	19				
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Oct. 1	19				
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Clippings, blanks, etc.					
Gold Exchange.					
Oct. 1	19				
Balance					
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Clippings, blanks, etc.					
Gold Exchange.					
Oct. 1	19				

SILVER.

[illegible]

CORRECT:

November 2, 1908

Superintendent.

Melter and Refiner.

Mint

Denver

Melter and Refiner's

October, 1908

Arnold. R.G.	15			Sick
Bush, Wm			30	Leave
Campbell, A.R.	1	4	30	"
Dakin, C.W.		1		"
Crary, J.H.	1			"
Hetrich, J.M.	6			"
Morrison, R.C.		3	30	"
O'Brian, W.S.	1			"
Pughe, J.F.		2	30	"
Ryan, P.	3			"
Schell, E.P.		1	30	"
"		1	30	Without pay
Spencer, G.N.	1			Leave
St. John, F.		3		"
Whitaker, S.R.	1			"
Wirth, B.P.	1	2		"
Whitehead, H.R.	7	2		"

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

November 9, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Dear Sir:

Under date of October 30, 1908, my assistant, Mr. Hetrich, communicated with you in answer to the October 27th letter of the Director; and I would now like to supplement Mr. Hetrich's communication with the following observations concerning a discussion of at least one feature of the matters under consideration, that occurred early in 1907.

When the "crude bullion operated upon" item was originally called for, it immediately raised the question as to how the correct amount could be ascertained, and, at the Director's request, my views were set forth in statements attached to the monthly cost reports of this department for January and February, 1907, to which reference is requested.

Briefly, it is impossible to determine anywhere near correctly the amount of "crude" used in the Refinery during any specified time (except between clean-up periods), by any system other than the one now in use, which system had the approval of the Bureau, at least tacitly, when the discussion of eighteen or twenty months ago ended.

To do our refinery work economically, it is necessary to carry from one to two weeks' supply of bullion on hand in the Refinery,

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

so that anodes, cathodes, etc., can be kept in stock that there may be no delay in the cell work at any time; hence it is evident that the amount of "crude" sent to the Refinery in any calendar month cannot necessarily have any close relation to the amount operated upon during that month. In fact, it would be much nearer the correct amount, if we took for October, for instance, the amount of "crude" sent to the Refinery from Sept. 20 to Oct. 20, which would represent approximately the crude operated upon in the month of October.

To illustrate more fully: In July, 1908, we sent to the Refinery 268,712.25 gross ounces of "crude," and received from the Refinery in that month only 29,693.31 gross ounces of fine metal; and if we had reported that we had operated upon (the amount sent to the Refinery), 268,712.25 ounces of crude, and received back only 29,693.31, it would certainly have had the appearance of being peculiar. In this connection, to show more fully what I believe to be the inaccuracy of considering the amount of "crude" sent to the Refinery in any given month as the amount operated upon, I call your attention to the September report of the Refinery of the San Francisco mint, wherein the Melter and Refiner reports 227,532.30 gross ounces of "crude" and a product of 428,072.666 ounces of fine gold and silver.

In answer to the Director's inquiry as to what I meant by the statement that "we never use any refinery fine gold for alloy purposes," it was this, that we never use any of the fine gold product

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent - 3

by the Refinery for alloy purposes. But we do use all of the above .992 deposits for fining up gold anode melts just the same as we use all deposits that are above the necessary fineness of the anode melts; that is to say, we put all deposits through the cells, and we have never put an ounce of gold into ingots direct, as the amount of deposits above .992 that we receive is very small and usually contains platinum.

As to our gold anode melts, we have reached the point where we seldom get them above .900. In the last month, October, we had only four melts that got that high; and in the same month we made a number under .870--in fact as low as .864 in gold and with silver from .044 to .095; and we are now making up our silver anode melts with about .400 gold--in fact, as high as .412-1/2.

Referring to the diagram of the Director and his letter of the 23d ult., of course we shall cheerfully comply with his desires, but, owing to the fact that we receive no dore bullion, it is necessary for us to use large quantities of refinery fine silver to alloy our silver anode melts (in October 71,500.00 ounces) and as we cannot take credit with its treatment against our cost account, it will place us at a great disadvantage with the other mints on the item of "cost per ounce of crude," because they seem to have all the dore bullion they can use.

In preparing our cost report for last month, we shall calculate the amount of "crude" on the new basis from July 1st, so that

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 4

the average cost for the year on this item may not be misleading.

Respectfully,

John Wilson
Melter and Refiner.

1 Product: a. Gold
b. Silver

194, 111.317 fine ozs.
125, 025.73 " "

Total 319, 137.047

2. Costs:

	Totals	Cost per oz.
a. Labor	1069.24	.008151
b. Crucibles	80.00	.000245
c. Acids	411.85	.001286
d. Supplies	296.43	.000894
e. Mitts, gloves, aprons	103.75	.000324
f. Chemicals	15.00	.000046
g. Sweeps cellar	0.00	.000000
h. M. & R. Gen'l	189.16	.000590
i. Fuel	240.00	.000742
j. Power	683.11	.002133
k. Repairs	235.85	.000735
l. Light & ventilation	110.00	.000343
m. Incidentals	4.20	.000013
n. Assays	245.92	.000767
o. Sick leave, vacation	121.80	.000360

Totals \$4696.91 .014667

3. New Equipment

21.93

Total expense \$4718.84

4. Average cost per fine ounce for fiscal year

.012797

5. Crude bullion, gross ozs. 166,690.69
Fine bullion (above .992) 1,891.15
Bullion retreated 119,650.21

Total operated on 388,232.05

6. Cost per crude ounce

.017871

7. Average cost per crude ounce for fiscal year

.018699

SWEEPS CELLAR

1. Product: a. Gold, std. ozs. 90.783
b. Silver " " 215.28
c. Tailings, avoird. lbs. 5,965

2. Costs:

a. Labor	110.50
b. Power	16.03
c. Light & Ven.	6.51
d. Supplies	10.10
e. Repairs	18.44
f. Incidentals	0.00
g. Sick lv, etc.,	23.56

Total \$185.14

4. Tailings, contained gold, 37.45
silver, 23.16

3. New Equipment

0.00

Total expense 185.14

5. Percentage of extraction:
a. Gold 75.5
b. Silver 79.1

8. Departments charged as follows: All to Ingot melting room.

Oct/08

INGOT MELTING ROOM

1. Amount of bullion melted: a. Gold 187,560.72
 b. Silver 303,894.85
 Total 491,455.57

2. Amount of good ingots: a. Eagles 163,310.98
 b. Half Eagles 16,540.06 179,851.04
 c. Dimes 297,701.30
 Total 477,552.34

Cost of ingots:	Gold		Silver		Total	
	Total	Per oz.	Total	Per oz.	Total	Per oz.
a. Labor	337.22	.001874	503.55	.001691	840.77	.001780
b. M. & R. Gen'l	75.87	.000421	113.29	.000380	189.16	.000396
c. Mitts, gloves	7.50	.000041	8.00	.000026	15.50	.000032
d. Crucibles	25.68	.000142	42.50	.000142	68.18	.000142
e. Sweeps collar	74.36	.000412	110.88	.000372	185.14	.000387
f. Supplies	84.14	.000134	44.54	.000149	68.68	.000143
g. Fuel	72.00	.000400	84.40	.000283	156.40	.000327
h. Power	24.09	.000133	35.98	.000120	60.07	.000125
i. Light & ven.	14.04	.000078	20.96	.000070	35.00	.000073
j. Repairs	36.42	.000146	39.45	.000132	65.87	.000137
k. Incidentals	0.00	.000000	0.00	.000000	0.00	.000000
l. Sick ly. etc	11.56	.000064	17.27	.000058	28.83	.000060
m. Alloy copper	108.69	.000604	199.16	.000668	307.85	.000644
Totals	\$301.47	.001456	\$1219.98	.004098	\$2021.45	.004232

59.00

4. New Equipment

Total expense \$2080.45

5. Percentage of good ingots to amt. bullion melted: Gold 95.8
 Silver 97.9

6. Average cost per ounce of ingots for four months:

Gold	Silver	Total
.004395	.004300	.004334

7. Cost distributed as follows: a. Eagles \$728.61
 b. Half Eagles 72.86
 c. Dimes 1219.98
 Total \$2021.45

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

November 17, 1902.

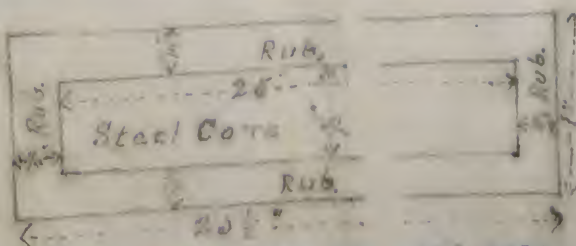
Hon. Frank W. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

Under date of January 27, 1902, I communicated with you regarding the obtainment from the American Hard Rubber Co. of a sample hard rubber rod and a quotation of price on 300 of the same. We received the said sample rod, and it was precisely what we desired.

Under date of February 4th, the company quoted a price on the rods of \$45.00 per hundred on a lot of 300. We now desire to purchase 300 rods, and request that the same be procured at the earliest possible date.

I have to request also that you procure a quotation of price on 500 rods made in the same manner, but of the dimensions shown in the following diagram of the transverse and longitudinal sections:



The former rod is for the gold cells, and the latter for the silver cells.

Respectfully,

John W. Milner
Melter and Refiner.

MINISTRY OF THE UNITED STATES AT DENVER,
 ROADS AND HIGHWAYS DEPARTMENT

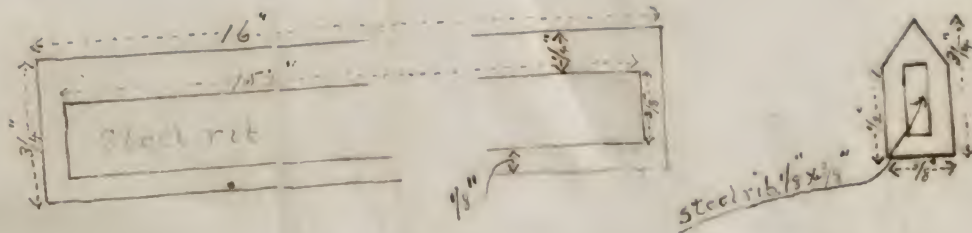
January 2, 1912.

Dear Sir:

I have the honor to acknowledge the receipt of your letter of the 29th inst.

and in reply to inform you that the same has been forwarded to the proper authorities.

The authorities are now considering the same and will advise you of the result as soon as possible. In the meantime, you are requested to keep the same in mind and to be prepared to take any action that may be required. Very respectfully,
 J. H. Wilson
 Chief Engineer



Very respectfully,
 J. H. Wilson
 Chief Engineer

J. H. Wilson
 Chief Engineer

Denver

McCluer and BaPier's

Nov., 1908.

Smith, W.		1	30	Leave
Gambrell, R.H.	1	1		"
Olney, J.H.	1	1	30	"
Dakin, C.T.		3		"
Gray, S.W.		3		"
Lindhard, J.A.	23			"
Payne, J.F.	7	1		"
Kehell, E.P.		2		Without pay
Spencer, C.H.		2		Leave
St. John, F.		1		"
Stoddard, K.T.	1	2		"
Taggart, R.H.	4			"
Whitehead, R.R.	8	6		"
Zinn, H.H.	5			Sick

MELTERS AND REFINERS OF BULLION BALANCES

Minist of the United States at

DENVER

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Deliveries to the Superintendent of the Mint by him during the month of November....., 1908.

GOLD

[illegible]

SILVER

[illegible]

CORRECT:

December 1971

3 190...

Superintendent.

Melter and Refiner.

REFINERY

1. Product:	a. Gold	194,956.90	fine	ozs.
	b. Silver	127,657.85	"	"
	Total	322,614.75	"	"

2. Costs:

a. Labor	\$1908.15
b. Crucibles	134.00
c. Acids	510.46
d. Supplies	252.24
e. Mitts, gloves, aprons	58.50
f. Chemicals	15.00
g. Sweeps cellar	214.60
h. M. & R. Gen'l	200.33
i. Fuel	212.66
j. Power	592.30
k. Repairs	121.14
l. Light, ventilation	100.00
m. Incidentals	5.90
n. Assays	265.52
o. Sick leave, holidays	82.62
Total	\$4671.48

3. New Equipment	136.51
Total expense	\$4807.99

4. Fine bullion, .992 and over, Denver Ref'y (all silver)	106,250.00
" " " " " Deposits	1,622.23

Total fine bullion, .992 and over 107,872.23

5. Slimes, assayer's bars, etc., no charges	50,493.41
---	-----------

Crude bullion at 7¢ per oz.	76.13
8¢	76.06
5-1/2¢	583.91
5¢	8.79
4-1/2¢	69.30
4¢	218,712.90
3-1/2¢	1,705.76
3-1/2¢	155.25
2¢	6,873.83
1-1/2¢	2,089.67
1¢	8,935.75
1/2¢	9,121.33
3/10¢	132.03
	248,545.76

Total amount operated upon 408,977.40

6. Cost per ounce total operated upon	.011478
7. Average " " " "	.012532
8. Cost per crude ounce	.018795
9. Average " " " "	.018720

Nov/08

INGOT MELTING ROOM

1. Amount of bullion melted:	a. Gold	322,575.64
	b. Silver	207,032.97
	Total	529,608.61

2. Amount of good ingots:			
	a. Double Eagles	170,733.67	
	b. Eagles	96,580.12	
	c. Half Eagles	48,797.24	316,111.03
	d. Dimes		201,734.00
	Total		517,845.03

3. Cost of Ingots:	Gold		Silver		Total
	Total	Per oz.	Total	Per oz.	
a. Labor	437.39	.001383	343.67	.001703	781.06
b. M. & R. Gen'l	116.67	.000389	91.67	.000454	208.34
c. Mitts, gloves	10.58	.000033	8.50	.000042	19.08
d. Crucibles	33.68	.000106	20.00	.000099	53.68
e. Sweeps Cel.	0.00	.000000	0.00	.000000	0.00
f. Supplies	35.83	.000113	34.33	.000170	70.22
g. Fuel	78.00	.000246	54.40	.000269	132.40
h. Power	27.62	.000087	21.70	.000107	49.32
i. Light, vent'n	14.00	.000044	11.00	.000054	25.00
j. Repairs	24.78	.000078	19.47	.000096	44.25
k. Incidentals	0.34	.000001	0.26	.000001	0.60
l. Sick lv. &c	57.97	.000183	45.55	.000225	103.52
m. Alloy copper	153.92	.000486	136.30	.000675	290.22
Totals	\$990.78	.003134	\$786.91	.003900	\$1777.69
					19.10

4. New Equipment	Total expense	\$1796.79
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5. Percentage of good ingots to amt. bullion melted:	a. Gold	97.9
	b. Silver	97.4

6. Average cost of ingots, per ounce, for five months:	
	a. Gold .003957
	b. Silver .004237

7. Cost distributed as follows:	a. Double eagles	535.02
	b. Eagles	307.14
	c. Half Eagles	148.62
	d. Dimes	786.91
	Total	\$1777.69

Nov/08

SWEEPS CELLAR

1. Product:	a. Gold, std. ozs.	184.218	
	b. Silver " "	356.64	
	c. Tailings, avoir. lbs.		14,430

2. Costs:

a. Labor	\$136.06
b. Power	12.19
c. Light, vent'n	17.56
d. Supplies	6.60
e. Repairs	13.75
f. Incidentals	0.00
g. Sick lv., etc.	28.44

Total	\$214.60
-------	----------

	0.00
--	------

3. New Equipment

Total expense

\$214.60

4. Tailings, contained	Gold	51.334
	Silver	417.20

5. Percentage of extraction:	a. Gold	78.2
	b. Silver	46.0

6. Departments charged as follows:

All to Refinery.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

December 16, 1906.

Hon. Frank M. Downer
Superintendent, U. S. Mint,
Denver.

Sir:

In response to your request for information as to what constituted the base elements in our gold anodes containing less than 900 parts gold, I requested Mr. Wirth to make an analysis and full report of the anodes made from Gold Anode melts Nos. 120 and 121, which were delivered to the Refinery on December 9th: these melts were regularly made up from our ordinary deposits, and weighed, respectively, 5589.10 and 5304.75 gross ounces, and each contained one Mercur (Utah) bar of from twelve hundred to thirteen hundred gross ounces, which accounts for the large amount of lead contained in them. Mr. Wirth reported as follows:

"The following test was made on gold anode melts Nos. 120 and 121, whose approximate analyses were as follows:

No. 120

Gold	879.5		
Silver	042.1	(Lead	031
		(Copper	014
		(Tellurium	trace
Base	078.4	(Arsenic	"
		(Tin	"
		(Iron	"
		(Nickel	"
		(Zinc	"

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

No. 121

Gold	864.2	(Lead	043
Silver	053.9	(Copper	018
		(Arsenic	trace
Base	081.9-	(Aluminum	"
		(Iron	"
		(Zinc	"
		(Tin	"
		(Tellurium	"

Our usual method of treating these anodes is to divide them in the gold cells with gold from the silver cells which is of a higher fineness, averaging about .920, in the proportions of about two anodes from the silver cells to one base anode. With this combination, we can maintain a current density of 75 amperes per square foot, with an electromotive force of one volt per cell.

This test, however, was made a little differently, as anodes from melts Nos. 120 and 121 were placed in separate cells and continued until they were completed.

The cells were started with electrolyte containing 55 gms. gold per litre and 13% free hydrochloric acid, at a temperature of 68 degrees C., with current density of 60 amp. per square foot, at one volt electromotive force. After running about two hours, the anodes in both cells began throwing off gas, and the current was then reduced to about 50 amp. per square foot, at which it was held until anodes were dissolved. At this current density, the anodes at various times

UNITED STATES AT DENVER,
MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

December 29, 1908.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

The Melter and Refiner's department performed the following work for the Coiner's department during the month of December, 1908, to wit: Melted 4,191.91 gross ounces of Coiner's filings; and costs attending the same were as follows:

1 #80 Crucible	\$4.00
1 " Cover	1.20
1 - 2" ring	.70
1 #4 Dipping cup	.50
1 Gold stirrer	1.50
5 lbs. borax, @ 11¢	.55
2 " nitre, @ 7-1/2¢	.15
3 " charcoal, MXX, @ 4-1/2¢	.13
4 hours furnace fuel, @ 37-1/2¢	1.50
4 " time - workman (Morrison)	2.50
Total	\$12.73

Respectfully,

Melter and Refiner.

Mint of the United States at DENVER

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of December, 1908

GOLD.

Received		STANDARD OUNCES.				Delivered		STANDARD OUNCES.			
Balance	Contained in Gold Deposits Contained in Silver Deposits Contained in Clippings, blanks, etc.					Ingots	Bars, Fine				
Dec. 1 19	Seattle Dep.	857	409	906				463	714	930	
		71	605	395					149	422	
		4	026	082							
		34	554	551							
		100	273	190							
	Con'd coin	3	796	440							
	G&S Exchg. bars		21	865							
	Sweeps bar		15	094							
	Coiner's bars	4	128	135							
		1	075	829	998	Balance	Dec. 31, 1908	19	611	965	840
									2	075	829 998

SILVER.

Received		STANDARD OUNCES.				Delivered		STANDARD OUNCES.			
Balance	Contained in Gold Deposits Contained in Silver Deposits Contained in Clippings, blanks, etc.					Ingots	Bars, Fine				
Dec. 1 19	Seattle Dep.	533	731	94				161	448	40	
		8	515	62							
		10	571	40							
		57	757	30							
	Con'd coin	1	200	65							
	G&S Exchg. bars		862	72							
	Sweeps bar		5	71							
	Coiner's bars		18	38							
	Fine bars	879	061	02							
		897	067	08		Balance	Dec. 31, 1908	19	735	608	68
									897	067	08

CORRECT:

Superintendent.

JANUARY 2

1909.

Seaworth and Ref.

Mint

Denver

Melter and Refiner's

Dec., 1908

Bush, Wm.		3	30	Leave
Campbell, A.R.	4	4	30	"
Dakin, C.W.	4			Sick
Gray, G.B.		1		Leave
Howard, M.	1	4		"
Lindhard, J.A.	2			"
O'Erlan, W.S.	1	3		"
Pughe, J.F.	5	6		"
Ryan, P.J.		3	30	"
Schell, E.P.		4		Without pay
Shields, B.G.	1			Leave
Smith, E.S.	4			"
Spencer, G.N.		3		"
" "		1	30	Without pay
Steddard, X.T.	1	5	30	Leave
St. John, F.		1	30	"
Whitaker, S.R.	2			"
Whitehead, H.R.	2			"
Wirth, E.P.	2	2		"

MELTER AND REFINER'S OPERATIONS.

Mint of the United States

At Denver, Colorado, January 12, 1912

The following statement shows in standard ounces the total amount of bullion in the different forms delivered to the Melters of this Department during the month of December 1911, and the amount of metal returned in ingots, bars, etc., and recovered with the apparent losses and gains:

METAL OPERATED UPON.	WEIGHT OF METAL		RETURNED BY MELTERS IN INGOTS, BARS.		RETURNED IN TOPS, BARS, CONDEMNED.		APPARENT GAIN.		LOSS.		RECOVERY		APPARENT NET LOSS.		APPARENT TOTAL GAIN.	
	Stand. oz.		Stand. oz.		Stand. oz.		Stand. oz.		Stand. oz.		Stand. oz.		Stand. oz.		Stand. oz.	
Gold Ingots,				414,892.46												
Gold Bars,	423,126.97				8,147.95				86.56		103.91				17.35	
TOTAL,	423,126.97			414,892.46		8,147.95			86.56		103.91				17.35	
Silver Ingots,				193,852.60												
Silver Bars,	198,089.60				4,001.64				235.96		236.05				0.09	
TOTAL,	198,089.60			193,852.00		4,001.64			235.96		236.05				0.09	

I certify the above to be a correct statement.

Approved:

James Milson
Melter and Refiner.

Superintendent.

To the DIRECTOR OF THE MINT, Washington.

a. Double Eagles 414,892.46
 b. Silver 193,852.00
 Total 608,744.46

2. Amount of good ingots: a. Double Eagles 414,892.46
 b. Quarter Dollars 193,852.00
 Total 608,744.46

Ingot
 Room
 Dec/28

3. Cost of Ingots:	Gold		Silver		Total
	Total	Per oz.	Total	Per oz.	
a. Labor	481.55	.001160	325.06	.001676	806.61
b. M.&R.Gen'l	124.37	.000299	83.96	.000433	208.33
c. Mitts, gloves	5.50	.000013	7.12	.000036	12.62
d. Crucibles	32.84	.000079	24.00	.000123	56.84
e. Sweeps cellar	147.97	.000356	99.89	.000515	247.86
f. Supplies	54.88	.000132	45.24	.000233	100.12
g. Fuel	96.00	.000231	41.25	.000212	137.25
h. Power	29.11	.000070	19.66	.000101	48.77
i. Light, vent'l'n	13.82	.000033	9.34	.000048	23.16
j. Repairs	16.42	.000039	11.09	.000057	27.51
k. Incidentals	1.79	.000004	1.21	.000006	3.00
l. Sick lv. &c	69.50	.000167	46.92	.000242	116.42
m. Alloy copper	313.43	.000755	137.17	.000707	450.60
Totals	1387.18	.003343	851.91	.004394	2239.09

4. New Equipment 0.00

Total expense \$2239.09

5. Percentage of good ingots: a. Gold 98.05
b. Silver 97.8

6. Average cost of ingots per ounce for six months: a. Gold .003765
b. Silver .004258

7. Cost distributed as follows: a. Double Eagles \$1387.18
b. Quarter dollars 851.91
Total \$2239.09

SWEEPS CELLAR

1. Product: a. Gold std. ozs. 103.91
b. Silver " 236.05
c. Tailings, avoird. lbs. 5975

2. Costs: a. Labor \$148.10
b. Power 15.23
c. Light, vent'l'n 23.15
d. Supplies 11.47
e. Repairs 6.46
f. Incidentals .45
g. Sick lv. &c 43.00
Total 247.86

3. New Equipment 0.00
Total expense \$247.86

4. Tailings contained: a. Gold 15.80
b. Silver 42.95

5. Percentage of extraction: a. Gold 86.8
b. Silver 84.6

6. Departments charged as follows: All to Ingot room

Dec/08

REFINERY

1. Product	a. Gold	166,841.06 fine ozs.	
	b. Silver	<u>13,735.30</u>	" "
	Total	180,576.36	" "

2. Costs:			
	a. Labor	\$1,865.54	
	b. Crucibles	104.00	
	c. Acids	407.72	
	d. Supplies	247.35	
	e. Mitts, gloves, aprons	72.00	
	f. Chemicals	20.00	
	g. Sweeps cellar	0.00	
	h. M. & R. General	208.34	
	i. Fuel	187.50	
	j. Power	652.83	
	k. Repairs	129.69	
	l. Light & ventilation	100.00	
	m. Incidentals	3.45	
	n. Assays	279.22	
	o. Sick leave, vacation, etc.	<u>217.98</u>	
	Total	4,495.62	
3. New Equipment		<u>156.06</u>	
	Total expense	\$4,651.68	
4. Fine bullion, .992 and over, Denver Ref'y, all silver,	100,950.00		
" " " " " Deposits	<u>887.84</u>		
		101,837.84	
5. Slimes, Assayer's and Coiner's bars, &c, no charges	70,234.21		
6. Crude bullion at 6¢ per ounce	11.75		
5-1/2	395.10		
5	300.15		
4-1/2	4,587.91		
4	141,856.80		
3	222.15		
2-1/2	519.94		
2	5,366.65		
1	9,009.98		
1/2	1,822.03		
4/10	<u>624.33</u>		
Total crude bullion	<u>164,716.79</u>		
Total amount operated upon	336,788.84		
7. Cost per ounce total operated upon,	.013348		
8. Average " " " "	.012669		
9. Cost per crude ounce	.027293		
10. Average " " "	.019822		

MELTER AND REFINER'S OPERATIONS.

M I N T of the United States

At Denver, Colorado

January 23, 1909

The following statement shows in standard ounces the total amount of bullion in the different forms delivered to the Melters of this Department during the months from July 1st to Dec. 1st, 1908, and the amount of metal returned in ingots, bars, etc., and recovered with the apparent losses and gains:

WEIGHT OF METAL.

RECOVERY.

METAL OPERATED UPON.	WEIGHT OF METAL.		RETURNED IN TOPS, BARS, CONDEMNED.	RECOVERY.		APPARENT NET LOSS.	APPARENT TOTAL GAIN.
	DELIVERED TO THE MELTERS.	RETURNED BY MELTERS IN INGOTS, BARS.		FROM SWEEPS.	FROM OTHER SOURCES.		
	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.

300 Gold Ingots,

Old Bars,

TOTAL,

300 Silver Ingots,

Silver Bars,

TOTAL,

I certify the above to be a correct statement.

Approved:

Superintendent.

To the DIRECTOR OF THE MINT, Washington.

Melter and Refiner.

MELTER AND REFINER'S OPERATIONS.

M I N T

of the United States

At Denver, Colorado, January 23, 1908

The following statement shows in standard ounces the total amount of bullion in the different forms delivered to the Melters of this Department during the month of December 1908, and the amount of metal returned in ingots, bars, etc., and recovered with the apparent losses and gains:

METAL OPERATED UPON.	WEIGHT OF METAL.			RECOVERY.				
	DELIVERED TO THE MELTERS.	RETURNED BY MELTERS IN INGOTS, BARS.	RETURNED IN TONGS, BARS, CONDENSED.	APPARENT GAIN.	APPARENT LOSS.	FROM SWEETS.	FROM OTHER SOURCES.	APPARENT NET LOSS.
	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.
Gold Ingots,	423,126.97	414,892.46	8,147.95	8,147.95	103.91			17.35
Gold Bars,								
TOTAL,	423,126.97	414,892.46	8,147.95	8,147.95	103.91			17.35
Silver Ingots,	198,089.60	193,852.00	4,001.64	4,001.64	236.05			0.09
Silver Bars,								
TOTAL,	198,089.60	193,852.00	4,001.64	4,001.64	236.05			0.09

I certify the above to be a correct statement.

Approved:

Superintendent.

TO THE DIRECTOR OF THE MINT, Washington.

Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT

January 26, 1909.

Hon. Frank M. Downer,
Superintendent, U.S.Mint,
Denver.

Sir:

Complying with your request of this morning, I have to advise you that this department is using the following blank books and forms:

Form No. 469	Foreman's Record of Gold Melting
" 275	" " " Silver "
" 871	Record of Refinery Melts
" 184	M. & R.'s Record of Silver Ingot Melting
" 185	" " " Gold " "
" 963	" Register of Deposits
" 338	Gold Deposits Sent to the Refinery
" 413B	M. & R.'s Vault register of Silver bars & weights
" 168	Receipts and Deliveries of Gold Bullion
" 183	" " " Silver "
" 740	M. & R. Bullion Ledger
" 869	Refinery Account
" 20	Receipts for Gold Deposits, M. & R. to SUPR.
" 21	" " " Clippings "
" 28	" " " Silver " "
" 492E	M. & R. Requisition for Supplies
" 722	Daily Statement of Operations
" 219	M. & R.'s Statement of Balances and Receipts

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

Form No. 85 M. & R.'s Operations

" 713 " Settlement

" 929 Melts for Parting

" 900 Settlement of M. & R.'s Department

Letterheads and noteheads, ruled and unruled

In addition to the foregoing, the Melter and Refiner's Department is using the following books and forms which are made in the office from time to time as needed:

Stock form	Assayer in account with Melter and Refiner
"	Record of Ingots delivered to Superintendent
Memo. slip	Gold Ingot Melt delivered to Melter
"	Silver " " " "

Very Respectfully,

John W. Wilson
Melter and Refiner.

Minist of the United States at D E N V E R

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of January 1909.

Received

SILVER

Received

COOKERY:

February 1
1903.

Superintendent.

Melter und Köhler.

M I N T

Denver, Colorado

Melter and Refiner's

Jan. 1909

Arnold, R.G.	10		Sick
Howard, M.	1		Leave
Schell, E.P.		1	"
Shields, B.G.	6		"
Spencer, G.N.	1		"
Taggart, B.H.		30	"
Whitaker, S.R.		3 30	"
Wirth, B.P.		7 30	"

U. S. MINT SERVICE.
Form No. 65.
Ed. Oct. 22-18-500.-8 x 10 1/2.

B

MELTER AND REFINER'S OPERATIONS.

At Denver, Colo. Spent of the United States February 1st, 1909.

The following statement shows in standard ounces the total amount of bullion in the different forms delivered to the Melters of this Department during the month of January, 1909, and the amount of metal returned in ingots, bars, etc., and recovered with the apparent losses and gains:

METAL OPERATED UPON.	WEIGHT OF METAL.			RECOVERY.			
	DELIVERED TO THE MELTERS.	RETURNED BY MELTERS IN INGOTS, BARS.	RETURNED IN TIPS, BARS, CONDENSED.	APPARENT GAIN.	APPARENT LOSS.	FROM SWEEPERS.	FROM OTHER SOURCES.
	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.
For Gold Ingots,	198.806.48	193.433.59	5.372.89				
Gold Bars,							
TOTAL,							
For Silver Ingots,	419.649.35	411.697.50	7.707.24				
Silver Bars,							
TOTAL,							

I certify the above to be a correct statement.

Approved:

Superintendent.

To the DIRECTOR OF THE MINT, Washington.

Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

February 5, 1909.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

I have carefully considered the form of blank which in contemplation as a substitute for Form No. 219, and respectfully present the following suggestions:

Sweeps: As to sweeps bars. Upon their being received from the Sweeps cellar, we credit the department furnishing the sweeps from which they were obtained, and then treat them as ordinary deposits in the make-up of Refinery anode melts; so the two lines of "Sweeps" in first and last "balances" might be omitted, and if any sweeps bars should be on hand at the end of the month, they could be shown on the line "bars" by writing in the word "sweeps."

As to the "Sweeps tailings," they are sacked and stored in the Sweeps cellar until we have a sufficient amount to sell, at which time the Assayer reports in duplicate to the Superintendent and the Melter and Refiner, and upon the report the Superintendent receipts to the Melter and Refiner for the standard ounces contained therein, and the Melter and Refiner credits the department entitled thereto, and the whole matter is concluded in the one transaction which occurs three or four times each year. So the new form should contain two lines under the sub-head "Deliv-

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

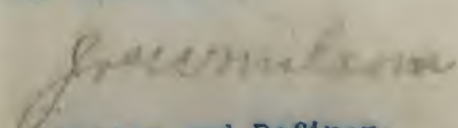
ered to Superintendent," on which to exhibit the account of said tailings so delivered. Also, under said sub-head, in the item "Ingots made," the word "made" should be stricken out, as its presence is unnecessary and may be misleading as to what ingots are referred to; that is, does the item refer to ingots made during the month of the report, and delivered, or to ingots of any month delivered?

I think the new blank is a great improvement, and the above suggestion to cut out the two lines of "Sweeps" in each of the "Balance" accounts was made partly from a desire to shorten the length of the form, as our present letter-press copy-book is only 12 inches long, and our press only 15; so that if the blank exceeds the latter length, it will be necessary for us to procure a new press.

I would further suggest that, if it is the intention to leave enough blank lines under the item "Ingots" (which occurs four times) to enter the designation of all denominations of coins that can be made, then it would be well to print in the designations.

I have noted the changes suggested on the form which I return herewith.

Respectfully submitted,


Melter and Refiner.

1. Amount of bullion melted: a. Gold 188,906.48
b. Silver 419,345.55
Total 608,252.03

2. Amount of good ingots: a. Half Eagles 182,433.50
b. Quarter Dollars 411,227.80
Total 605,061.09

3. Cost of Ingots:	Gold		Silver		Total
	Total	Per oz.	Total	Per oz.	
a. Labor	\$256.15	.001324	\$597.89	.001452	\$854.04
b. M. & R. Gen'l	62.50	.000323	145.83	.000354	208.33
c. Mitts, gloves	3.25	.000016	10.00	.000024	13.25
d. Crucibles	16.84	.000087	32.00	.000077	48.84
e. Sweeps cellar	0.00	.000000	0.00	.000000	0.00
f. Supplies	24.44	.000126	69.50	.000189	93.94
g. Fuel	41.62	.000215	94.50	.000229	136.12
h. Power	15.86	.000081	37.02	.000089	52.88
i. Light, ventil'n	7.08	.000036	16.51	.000040	23.59
j. Repairs	14.64	.000075	34.16	.000082	48.80
k. Incidentals	0.00	.000000	0.00	.000000	0.00
l. Sick leave, &c.	19.97	.000103	46.59	.000113	66.56
m. Alloy copper	114.31	.000590	309.75	.000732	424.06
Totals	\$576.36	.002961	\$1393.55	.003385	\$1970.21

4. New Equipment 72.76

Total expense \$2042.97

5. Percentage of good ingots: a. Gold 97.2
b. Silver 98.0

6. Average cost of ingots per ounce for 7 months:

a. Gold .003665
b. Silver .004067

7. Cost distributed as follows: a. Half Eagles \$576.36
b. Quarter Dollars 1393.55
Total \$1970.21

SWEEPS CELLAR

1. Product: a. Gold std. ozs. 186.968
b. Silver " 762.42
c. Tailings, avoird. lbs. 7,742

2. Costs: a. Labor \$175.50
b. Power 19.05
c. Light, vent'n 23.58
d. Supplies 8.07
e. Repairs 4.75
f. Incidentals .60
g. Sick lv &c 9.50
Total \$241.05

3. New Equipment 57.25

Total expense \$298.30

4. Tailings contained: a. Gold, 26.968; Silver, 164.43

5. Percentage of extraction: a. Gold, 87.33; b. Silver, 92.25

6. Departments charged as follows: All to Refinery.

REFINERY

1. Product: a. Gold	148,743.76	fine	ozs.
b. Silver	21,689.70	"	"
Total	170,433.46	"	"

2. Costs:

a. Labor	\$1954.16
b. Crucibles	116.00
c. Acids	476.54
d. Supplies	209.18
e. Mitts, gloves, aprons	79.00
f. Chemicals	15.00
g. Sweeps cellar	241.05
h. M. & R. General	208.33
i. Fuel	189.37
j. Power	585.00
k. Repairs	142.55
l. Light & ventilation	100.00
m. Incidentals	3.30
n. Assays	280.27
o. Sick leave, vacation & holidays	125.87
Total	\$4725.60

3. New Equipment

45.72

Total expense \$4771.32

4. Fine bullion, .992 and over, Denver ref'y, all silver,	134,305.50
" " " " Deposits	91.86

Total fine bullion 134,397.36

5. Slimes, assayers & assayers sweeps bars, no charges	41,089.69
---	-----------

6. Crude bullion at 6-1/2¢ per ounce	244.08
6	43.67
5-1/2	1195.62
5	250.70
4-1/2	57.88
4	190552.73
3-1/2	1239.19
3	617.93
2-1/2	177.71
2	7340.65
1-1/2	3668.67
1	8096.13
1/2	639.52

Total crude bullion 217,124.42

Total amount operated upon 392,611.57

7. Cost per ounce total operated upon,	.012036
8. Average " " " "	.012565
9. Cost per crude ounce	.021764
10. Average " " " "	.020104

MELTERS AND REFINERS OF BULLION BALANCES

Print of the United States at D E N V E R

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of February, 1909.

GOLD.

[illegible]

SILVER.

[illegible]

CORRECT:

March 1 1909.

Superintendent.

Melter and Refiner.

U. S. MINE SERVICE.
Form No. 65.
Ed. Oct. 22-28-30. 8x10 1/2

B

MELTER AND REFINER'S OPERATIONS.

At Quincy, Colorado March 1st, 1909.

The following statement shows in standard ounces the total amount of bullion in the different forms delivered to the Melters of this Department during the month of February, 1909, and the amount of metal returned in ingots, bars, etc., and recovered with the apparent losses and gains:

METAL OPERATED UPON.	WEIGHT OF METAL.			RECOVERY.		
	DELIVERED TO THE MELTERS.	RETURNED BY MELTERS IN INGOTS, BARS.	RETAINED IN TIPS, BARS, CONDENSED.	APPARENT GAIN.	APPARENT LOSS.	APPARENT TOTAL GAIN.
	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	FROM SWEEPS RECOVERED FROM OTHER SOURCES Stand. ozs.	APPARENT NET LOSS. Stand. ozs.
Gold Ingots,	371.904.85	362720.39	9113.22		71691.153.132	212.253
Gold Bars,					160.361	
TOTAL,					71851.309	
Silver Ingots,	172.257.40	169.257.45	2.892.10		107.85720.98	1021.85
Silver Bars,					40872	
TOTAL,						

I certify the above to be a correct statement.

Approved:

William A. ...
Melter and Refiner.

Subscribed and sworn to.

To the DIRECTOR OF THE MINT, Washington.

Mint

Denver

M. & R.

February, 1909

Campbell, A.R.	2		Leave
Gray, G.B.		30	"
O'Brian, W.S.	1		Without pay
Schell, E.P.	1		Leave
Smith, E.S.		1	"
Spencer, G.N.		4	"
St. John, F.		4	30
Stoddard, X.T.		2	30
Wirth, E.P.	1	5	30
Bush, Wm		1	"
Whitehead, H.R		1	"
Hettrich Jm		3	30

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

March 3, 1909.

The Waterbury Farnel F. & M. Co.,
Waterbury, Conn.

Gentlemen:

You furnished our Mint with a 200-Ton hydraulic press,
and I would now like to have you furnish me cost on duplicate
parts for said press, particularly at this time, with the cost
of a new cylindrical mould, which is made in three pieces, 22"
deep, and 15" diameter.

Respectfully,

[Handwritten signature]
Melter and Refiner.

Recd. 3/10/09

U. S. MINT SERVICE.
 FORM NO. 65.
 Feb. 1906 22-06-500-38 1075

MELTER AND REFINER'S OPERATIONS.

of the United States

At Denver, Colorado, March 15th, 1909.

The following statement shows in standard ounces the total amount of bullion in the different forms delivered to the Melters of this Department during the month of February, 1909, and the amount of metal returned in ingots, bars, etc., and recovered with the apparent losses and gains:

METAL OPERATED UPON	WEIGHT OF METAL			RECOVERY			
	DELIVERED TO THE MELTERS.	RETURNED BY MELTERS IN INGOTS, BARS, Etc.	RETURNED IN TONGS, BARS, CONDENSED.	APPARENT GAIN.	APPARENT LOSS.	FROM SWEEP- ING METAL	FROM OTHER SOURCES.
	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.
Gold Ingots,	271,900.850	362,720.390	911.222		71,240 123.132	160.361	212,226.5
Gold Bars,	113.789	113.789					
TOTAL,	372,018.639	362,834.179	911.222		71,240 123.132	160.361	212,226.5
Silver Ingots,	172,207.400	169,207.445	2,592.10		107,855 720.98	408.72	102,155.5
Silver Bars,							
TOTAL,	172,207.400	169,207.445	2,592.10		107,855 720.98	408.72	102,155.5

I certify the above to be a correct statement.

Melton and Refiner.

Approved:

Superintendent.

To the DIRECTOR OF THE MINT, Washington.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

March 9, 1909.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

Requisition is hereby made for the following blank books and form for the use of the Melter and Refiner's department during the present calendar year. None of these will be required before July 1, 1909.

- | | |
|----|--|
| 2 | Form No. 871, Record of Refinery Melts |
| 1 | " " 183, Receipts & Deliveries of Silver Bullion |
| 12 | " " 900, Settlement of M. & R.'s Department |

Respectfully,

[Signature]
Melter and Refiner.

REFINERY

1. Product: a. Gold	145,596.09	fine	ozs.
b. Silver	29,464.80	"	"
Total	<u>175,060.89</u>	"	"

2. Costs:	
a. Labor	\$1755.00
b. Crucibles	96.00
c. Acids	364.55
d. Supplies	186.48
e. Mitts, gloves, aprons	86.75
f. Chemicals	10.00
g. Sweeps cellar	272.79
h. M. & R. Gen'l	208.33
i. Fuel	137.40
j. Power	586.22
k. Repairs	127.83
l. Light & ventilation	100.00
m. Incidentals	3.50,
n. Assays	344.35
o. Sick leave, vacation & holidays	<u>122.23</u>

Total \$4381.43

3. New Equipment 137.11

Total expense \$4518.54

4. Fine bullion, .992 & over, Denver Ref'y, all silver	112,200.00
" " " " " Deposits	<u>1,096.53</u>

Total fine bullion 113,296.53

5. Slimes, Assayer's & Sweeps bars, etc., no charges 39,643.85

6. Crude bullion at 6¢ per oz.	4.54
5-1/2	76.85
5	5019.74
4-1/2	52.69
4	158540.80
3-1/2	23.31
2-1/2	88.82
2	5765.76
1-1/2	1.46
1	8129.73
1/2	<u>704.72</u>

Total Crude bullion 176,408.42

Total amount operated upon 329,348.80

7. Cost per oz. total operated upon .013303

8. Average " " " " .012654

9. Cost per crude ounce .024836

10. Average " " " .020602

INGOT MELTING ROOM

1. Amt. of bullion melted:	a. Gold	371,904.85
	b. Silver	<u>172,257.40</u>
	Total	544,162.25
2. Amt. of good ingots:	a. Half Eagles	362,720.39
	b. Qr.Dollars	<u>169,257.45</u>
	Total	<u>531,977.84</u>

3. Cost of Ingots:	Gold		Silver		Total
	Total	Per oz.	Total	Per oz.	
a. Labor	513.39	.001415	256.69	.001516	770.08
b. M.& R.Gen.	138.89	.000382	69.45	.000410	208.34
c. Mitts,gloves	5.00	.000013	7.50	.000044	12.50
d. Crucibles	24.84	.000068	16.00	.000094	40.84
e. Sweeps cellar	0.00	.000000	0.00	.000000	0.00
f. Supplies	37.95	.000104	35.25	.000208	73.20
g. Fuel	66.90	.000184	29.10	.000171	96.00
h. Power	33.79	.000093	16.90	.000099	50.69
i. Light,ventil'n	13.77	.000037	6.88	.000040	20.65
j. Repairs	42.86	.000118	21.43	.000126	64.29
k. Incidentals	1.60	.000004	.80	.000004	2.40
l. Sick lv. &c.	59.33	.000163	29.67	.000175	89.00
m. Alloy copper	289.10	.000797	111.36	.000657	400.46
Totals	<u>\$1227.42</u>	<u>.003383</u>	<u>\$601.03</u>	<u>.003550</u>	<u>\$1828.45</u>
4. Neq Equipment					14.60
			Total expense		<u>\$1843.05</u>

5. Percentage of good ingots: a. Gold 97.5 b. Silver 98.2

6. Average cost of ingots per oz. for 8 months: a. Gold .003611
b. Silver .004025

7. Cost distributed as follows: a. Half eagles \$1227.42
b. Quar.Dollars 601.03
Total \$1828.45

SWEEPS CELLAR

1. Product:	a. Gold, std. ozs.	98.483
	b. Silver "	<u>277.49</u>
	c. Tailings, avoird. lbs.	7,873
2. Costs:	a. Labor	138.19
	b. Power	25.25
	c. Light, vent'l'n	20.65
	d. Supplies	11.31
	e. Repairs	9.33
	f. Incidentals	0.00
	g. Sick lv. &c.	18.06
	Total	<u>\$272.79</u>
3. New Equipment		19.80
	Total expense	<u>\$292.59</u>
4. Tailings contained:	a. Gold 26.505 std. ozs.	
	b. Silver 200.32 "	
5. Percentage of extraction:	a. Gold 97.5 78.79	
	b. Silver 58.07	
6. Departments charged as follows:	All to Refinery.	

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

March 23, 1909.

Hon. Frank M. Downer,

Superintendent U. S. Mint,

Denver.

Sir:

I am sending you herewith a box prepared for shipment which contains the cores of propellers for the gold and silver cells, with the request that you obtain quotations of price for furnishing same, from the American Hard Rubber Co., No. 9 Mercer St., New York. We shall want 36 of the gold cell propellers, being the smaller ones; and 24 of the silver cell propellers, being the larger ones.

We desire to have these cores made of good iron, practically duplicates of the samples herewith; the same then to be covered complete with not less than 1/16", nor more than 3/32" in thickness of hard rubber.

Very respectfully,

Joseph Wilson

Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
 MELTER AND REFINER'S DEPARTMENT,
 MINT OF THE UNITED STATES AT DENVER.
 MELTER AND REFINER'S DEPARTMENT
 April 1, 1909

March 25, 1909.

RECEIVED of Frank M. Downer, Superintendent of the Mint of the United States at Denver, in redelivery after settlement on account of renewal of official bond of the Melter and Refiner of said Mint, Four hundred and thirty-three thousand seven hundred and ninety-three and two hundred thousandths (433,793.200) standard ounces of Gold; and Four hundred and thirteen thousand seven hundred and sixty-seven and seven one hundredths (413,767.71), standard ounces of Silver. You obtain quotations of price for furnish-

ing bars from The American Hard Rubber Co. No. 9 Mercer St.,
 Standard Ounces

New York. We shall want 50 of the gold cell propellers, being
 Gold 433,793.200
 the smaller ones; and 24 of the silver cell propellers, being the
 Silver 413,767.71.
 larger ones.

We desire to have these cores made of good iron, practically
 duplicate of the samples herewith; the same then to be covered
 with not less than 1/16", nor more than 3/32" in thick-
 ness of hard rubber.

Very respectfully,

Melter and Refiner.

U. S. MINT SERVICE
Form No. 219,
Ed. Feb. 3-05-700. 8 x 10 1/2.

MELTERS AND REFINERS OF BULLION BALANCES.

Mint of the United States at DENVER

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of March, 1909.

GOLD.

Received	Mch. 1 19	STANDARD OUNCES.			Delivered	19	STANDARD OUNCES.		
		Balance	Contained in Gold Deposits	Contained in Silver Deposits			Balance	Contained in Gold Deposits	Contained in Silver Deposits
Balance		596	118	541	Ingots		562	615	800
Contained in Gold Deposits		67	143	692	Bars, Fine				
Contained in Silver Deposits		4	702	122	Bars, Standard				
Contained in		119	169	921	Bars, Unparted				
Clippings, blanks, etc.		3	522	389	Sweeps		435	793	200
Cont'd coin			699	100	In settlement			0.000	0.000
G. Exch. bars			26	977	Balance March 31, 1909		796	409	000
S. "			7	152					
Swps. 3d Cr. D. M. R.		796	19	125					

SILVER.

Received	Mch. 1 19	STANDARD OUNCES.			Delivered	19	STANDARD OUNCES.		
		Balance	Contained in Gold Deposits	Contained in Silver Deposits			Balance	Contained in Gold Deposits	Contained in Silver Deposits
Balance		427	516	11	Ingots		209	342	80
Contained in Gold Deposits		9	883	92	Bars, Fine				
Contained in Silver Deposits		12	644	21	Bars, Standard				
Contained in		1	223	77	Bars, Unparted				
Clippings, blanks, etc.		95	355	05	Sweeps		415	787	71
Cont'd coin		9	264	55	In settlement			0.00	0.00
G. Exch. bars			14	53	Balance March 31, 1909		622	110	51
S. "			28	06					
Swps. 5d Cr. D. M. R.		622	6	15					

CORRECT

Superintendent.

April 1st,

1909

Belleville
Melter and Refiner.

Mint

Denver

Melter and Refiner's

March, 1909

Chaffee, D.	1	Leave
Dakin, C.W.	2	30 "
Lindhard, J.A.	1	"
Ryan, P.	4	"
Schell, E.P.	1	"
Smith, E.S.	1	"
St. John, F.	5	"
Stoddard, X.T.	1	"
Taggert, B.H.	4	Sick
Whitaker, S.R.	5	Leave
Wirth, B.P.	1	"

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

April 7, 1909.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

A letter under date of March 29th from the Department of Electro-Chemistry of the Indiana State University, referred to this department, has been duly considered. The current density used in our silver process at the present time is fourteen amperes per square foot at the cathode and about the same at the anode. A higher current density than this is hardly permissible on account of its generating gas at the anode. Any electrolyte to be used in our process must be adapted to refining gold at the anode, as well as depositing silver at the cathode, that is, it must be capable of dissolving base metals from the anode. As to the deposit on the cathode, its solidity and adherence are both quite satisfactory under our present process. However, we would be pleased to try the electrolyte referred to in order to ascertain whether or not it could be applied to our process, and, if so, whether or not it would be more economical.

Very respectfully,

John Wilson
Melter and Refiner.

Mch/09

REFINERY

1. Product:	a. Gold	174,637.59	fine	ozs.
	b. Silver	63,737.80	"	"
	Total	238,375.39	"	"

2. Costs:

a. Labor	\$2043.90
b. Crucibles	108.00
c. Acids	580.49
d. Supplies	241.82
e. Mitts, Gloves, A.	82.50
f. Chemicals	15.00
g. Sweeps Cellar	0.00
h. M. & R. Gen'l	208.34
i. Fuel	184.50
j. Power	573.64
k. Repairs	179.76
l. Light, ventl.	100.00
m. Incidentals	12.40
n. Assays	359.61
o. Sick lv. etc.	43.13

Total \$4733.09

3. New Equipment

173.42

Total expense

\$4906.51

4. Fine bullion, .992 & over, Denver Ref'y, all silver,	99,580.00
" " " " " Deposits	267.31

Total fine bullion

99,847.31

5. Slimes, assayer's & Sweeps bars, no charges

75,787.29

6. Crude bullion at 7¢ per oz.	13.75
6-1/2	39.24
6	25.34
5-1/2	235.96
5	241.15
4-1/2	3,043.29
4	203,673.83
3-1/2	50.62
3	39.14
2	10,026.37
1-1/2	1,943.34
1	15,702.55
1/2	981.35

Total crude bullion

236,015.93

Total amount operated upon

411,651.03

7. Cost per ounce total operated upon	.011497
8. Average cost per ounce ditto	.012503
9. Cost per crude ounce	.020054
10. Average ditto	.020535

1. Amount of bullion melted: a. Gold 322,013.08
b. Silver 343,389.55
Total 665,402.63

2. Amount of good ingots: a. Half Eagles 314,173.65
b. Qr. Dollars 338,431.00
Total 652,604.65

3. Cost of Ingots:

	Gold		Silver		Total
	Total	Per oz.	Total	Per oz.	Total
a. Labor	\$450.39	.001433	\$485.91	.001435	\$936.36
b. M. & R. Gen'l	100.21	.000318	108.12	.000319	208.33
c. Mitts & gloves	10.50	.000033	6.75	.000019	17.25
d. Crucibles	25.68	.000081	28.00	.000082	53.68
e. Swps. Cellar	146.23	.000465	157.73	.000466	304.01
f. Supplies	38.20	.000121	40.06	.000118	78.26
g. Fuel	56.40	.000179	60.40	.000179	117.30
h. Power	33.54	.000106	36.18	.000106	69.72
i. Light, ventil'n	15.05	.000047	16.13	.000047	31.28
j. Repairs	17.97	.000057	19.39	.000057	37.36
k. Incidentals	3.15	.000010	3.40	.000010	6.55
l. Sick lv. &c	2.84	.000009	3.07	.000009	5.91
m. Alloy copper	166.67	.000530	200.60	.000592	367.27
Totals	\$1066.83	.003395	\$1166.45	.003446	\$2233.28

4. New Equipment 66.08

Total expense \$2299.36

5. Percentage of good ingots: a. gold 97.5
b. silver 98.5

6. Average cost of ingots per ounce for 9 months: Gold .003580
Silver .003943

7. Cost distributed as follows: a. Half Eagles \$1066.83
b. Quarter dollars 1166.45
Total \$2233.28

SWEEPS CELLAR

1. Product: a. Gold, std. ozs. 118.99,
b. Silver " " 202.24
c. Tailings, avoird. lbs. 14,390

2. Costs: a. Labor \$214.07
b. Power 23.80
c. Light & Ven. 31.28
d. Supplies 12.10
e. Repairs 18.26
f. Incidentals 0.00
g. Sick lv. &c. 4.50

Total 304.01
0.00

3. New Equipment
Total expense \$304.01

4. Tailings contained: a. Gold, 32.27; b. Silver, 151.61

5. Percentage of extraction: a. Gold, 78.6; b. Silver, 57.1

6. Department charged: All to T. & C.

Ingot Room

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

April 12, 1909.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
City.

Sir:

Under date of March 23, I requested that you obtain quotation of price for furnishing propellers for the gold and silver cells, and closed that communication with these words:

"We desire to have these cores made of good iron, practically duplicates of the samples herewith, the same then to be covered complete with not less than 1/16" nor more than 5/32" in thickness of hard rubber."

We also furnished you at that time with samples of both propellers made of iron ready to be covered.

Under date of April 7th, the American Hard Rubber Co. quoted you prices on said propellers, and stated that they were sending by mail under separate cover a sample of what they proposed to furnish. This sample (dated April 7, 1909, Est. 1213) I have carefully examined, but it is not what we ordered, and as made would be utterly useless for our purposes. The propeller furnished is made of rubber without the iron center. The propellers that we require must be made as stated in our former letter, of good iron, including rod and propeller, all fastened together, and afterwards covered with hard rubber. We could not use this propeller without the iron center, because they are both used in a hot solution, and without

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Superintendent - 2

the iron center they would become soft and useless.

Will you please resubmit the matter to the said American Hard
Rubber Co. for their further consideration?

Very respectfully,

J. W. Milson

Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

April 26, 1909.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

I beg to submit the following list of supplies, estimated to be needed by the Melter and Refiner's Department during the fiscal year beginning July 1, 1909:

Graphite Goods:

Crucibles, No. 80 Mint Special	600
" " 14	25
Cups, No. 3, heavy, 31-1/2 ozs. Troy.	350
" No. 4 " 35 "	350
Covers for No. 80 Crucibles	125
Rings, 2" for ditto	200
" 4" " "	100
Gold Stirrers, round, Mint special	140

Fire clay Goods:

Pedestals, S-195	200
Quarter slides, S-170	500
" " S-20	600
Fire clay	5 tons
Furnace Bodies, Sets S-163, A,B,C,D,	18 sets
Top tiles, S-163-G,	40
Fire brick, standard	10,500
" " splits	1,100
" " soaps	1,000
Hood tiles, rights, 2935	28
" " lefts, 2936	28
" " tops, 2934	28
20 gm. clay crucibles	100
covers for same	25
40 gm. clay crucibles	100
Covers for same	25
Furnace body for Fletcher gas furnace #41	1
" cover " " " "	1
Fire brick cylinder for Laboratory furnace	3
Magnesite brick arch	500

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

2

Acids and Chemicals:

Sodium Hydrate, C.P.	15	lbs.
Potassium " "	15	"
Calcium Chloride, C.P.	5	"
Mercury	225	"
Caustic Soda	30	"
Cyanide Potassium, fused white, 30%	10	"
" " 98% to 100% C.P.	5	"
Copper sulphate, Com.	500	"
Ammonium Chloride "	500	"
Stannous chloride, C.P.	5	"
Common salt	500	"
Crushed rock salt	10	tons
Potassium Carbonate, Com'l	10	lbs.
Test lead, C.P.	25	"
Litharge, C.P.	25	"
Talcum powder	10	"
Phenol Sodique	15	bottles
Gelatine, pure	600	lbs.
Magnesite	500	"
Grain alcohol	25	gals.
Wood "	25	"
Acetic acid, Com'l, 30%	25	lbs.
Hydrochloric Acid, Com'l, 22 deg. Be.	50	tons
Nitric Acid, Com'l, free from chlorine, 38 deg. Be.	40	"
Sulphuric Acid " 66 deg. Be.	15	"
Ammonium Hydrate, Com'l, 26 deg. Be.	5	"
Sulphurous acid, C.P.	10	cans
Acetic acid, C.P., 99-1/2%	25	lbs.
Oxalic acid, Com'l	25	"
Citric acid, C.P.	10	"
Hydrofluoric acid, C.P.	5	"
Ammonium Hydrate, C.P.	500	"
Hydrogen Peroxide	12	"
Iron Sulphate, Com'l	12	tons
Zinc slab, 99%	4	"
Sodium Carbonate, C.P.	25	lbs.
Metallic Sodium	2	"
Potassium Nitrate, C.P. (Powd.)	5	"
Hydrochloric acid, strictly C.P., 1.20 Sp.Gr.	1/2	ton
Nitric acid, " " 1.42 " "	1/2	"
" " fuming " " 1.60 " "	500	lbs.
Sulphuric acid, strictly C.P. 1.845 " "	1/2	ton

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

Rubber Goods:

* Gauntlets, 22 inch	10 pairs
* Black rubber gloves, 4 inch	24 doz. prs.
* White " " 9 " "	24 " "
Tubing, white, 1/8" to 1-1/2" diam., med. wall	50 ft.
" " 1/8" to 1" " heavy wall	50 "
" pure gum, 3/16" to 3/4" "	100 "
Sheeting " "	10 lbs.
Bulbs, 25 C.C. capacity	6
" 50 " "	6
" 2 " "	6
" 5 " "	6
Stoppers, assorted	20 lbs.
Pure gum pads for copper plate dressing, 4"x6"	1/4 doz.
" " " " 6"x6"	1/4 "

Glass, Porcelain, and Earthenware Goods:

Watch glass, best quality, 2 inch diam.	1 doz.
" " " 3 " "	1 "
" " " 4 " "	1 "
" " " 6 " "	1 "
" " " 8 " "	1 "
Precipitating jars, with lip, 2 gal. cap.	1/2 "
Assorted glass tubing	25 lbs.
" rods	25 "
Test tubes, 8"x1"	10 doz.
" " 4"x1/2"	5 "
" " 3"x3/8"	3 "
Glass troughs, 6"x8"x12-1/2"	1/4 "
" " 4"x4"x8"	1/4 "
Beakers, Bohemian style, plain form #1 to #9	6 nests
" " " Griffin's lipped #00	6 doz.
" " " #2	1/2 "
" " " #3	1/2 "
" " " #5	1/2 "
" " " #8	1/2 "
" " " #12	1/2 "
Evaporating dishes, German porcelain, 3-1/2" dia.	2 "
" " " 8" "	1 "
" " " 12" "	1 "
" " " 16" "	1 "
Casseroles, Royal Berlin porcelain, 2" diam.	1 "
" " " 3-3/4" "	1 "
" " " 6-1/2" "	1 "

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

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Glass, Porcelain, and Earthenware Goods: (continued)

Flasks, flat bottom, ring neck, 8 oz. capacity	3 doz.
" " " " " 16 " "	3 "
" " " " " 32 " "	4 "
" Erlenneyer	1/2 "
" " " " " 4 " "	1/2 "
" " " " " 8 " "	1/2 "
" " " " " 16 " "	1/2 "
Funnels, Bunsen's ex. long stem, 1-1/2" diam.	1 "
" " " " " 3" "	1 "
" " " " " 5" "	1/2 "
" Best German glass	
" separatory cylindrical shape, 4 oz. cap.	1/2 doz.
" " " " " 8 " "	1/4 "
Porcelain crucibles (Royal Berlin) 1" diam.	100
" " " " " 1-1/2" "	100
" " " " " 1-3/4" "	100
" " " " " 3" "	25
Pipettes, Mohr's, accurately graduated, 1 c.c. cap.	1/2 doz.
" " " " " 5 " " "	1/2 "
" " " " " 10 " " "	1/2 "
" Volumetric, 25 c.c. cap.	1/2 "
" " 50 " " "	1/2 "
" " 100 " " "	1/2 "
Burettes, patent (3 ways glass stop cock) 100 c.c. cap.	1/4 doz.
" Mohr's, 50 c.c. cap.	1/2 "
" " 25 " " "	1/2 "
China pitchers, 6 pt.	2 doz.
" " 8 " "	2 "
Earthenware pitchers, 4 gal.	2 "
Soup plates, 8" and 10"	4 "
Large mouth bottles, 12 oz.	1/2 "
" " " " " 6 " "	1/2 "

Mitts, Gloves, Sleeves, Aprons:

* Aprons, Blue denim, men's	50 doz.
* Men's sleeves, blue denim	50 doz.prs.
* Men's aprons, asbestos covered	1 doz.
* Men's sleeves, asbestos covered	1 doz.prs.
* Men's buck gloves, heavy	450 prs.
Men's buck mitts	20 "
* Asbestos Mitts	100
* Carpet Mitts	500
* Men's Fire proof buck gloves	1 doz.prs.
* Blacksmith aprons, muleskin, with bib	1 doz.

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

5

Miscellaneous:

* Lard Oil	3 bbls.
Screened sand	3 tons
Leather belting, 1-1/4 inch wide	50 ft.
Conical moulds, 12"x14" deep	1/4 doz.
* Crash towelling	200 yds.
Iron turnings	2 tons
Files, 14" flat bastard	1 doz.
* Bleached cheese cloth	5,000 yds.
* Unbleached sheeting, 10/4's wide	3,000 "
Water hose, 1", 3/4", 1/2" - 4 ply	50 ft. each
Steam " 1"	50 "
Carpenter's chalk	3 boxes
Silk elastic, 5/8" wide25 yds.
Turpentine	25 gals.
Horn spoons, 10"	1 doz.
" " 4"	1 "
" scoops, 5"x1-1/2", largest diam.	1 "
Brass wire screen, 20 mesh, 36"x100"	
" " " 30 " 36"x120"	
" " " 40 " 36"x120"	
Screw-head stove bolts, flat, 5/16"x2"	4 doz.
Galvanized iron wash tubs, 30"	2
" " " pockets, water	4
Shovel, No. 3, long handle, square point	1
" " " short " " "	1
Striped bed ticking, extra heavy	10 yds.
* Tailing sacks	300
Plows for Elspass mill	1 set
Screen frames for ditto	1 "
Heavy seamless tin pans, 8 inch	1/2 doz.
8 lb. sledge with handle	1
Gold pan, 7"	1
* Twine	40 lbs.
* Machine oil	2 gals.
Wire screen brushes, 2-1/2"x6"	1/6 doz.
Pointing trowels	1/6 "
Respirators (covers)	1 "
Asbestos cement	5 cans
Asbestos board, 1/4" thick	40 lbs.
" " 1/16" "	20 "
Rubber cement (Brazilian gum)	2 "
Filter paper, S. & S., #589, 7 cm. Diam	1000
" " " " " 11 " "	1000
" " French white (sheets) 21"x17"	1000

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

6

Brushes, Mops, etc.

12 best whisk brooms	2 doz.
Floor brushes, Defender #12	2 "
" " " 16	3 "
Furnace brushes	4 "
Dust brushes	2 "
Fibre "	2 "
Mop sticks, #10	3 "
Mops, cotton	

Fluxes:

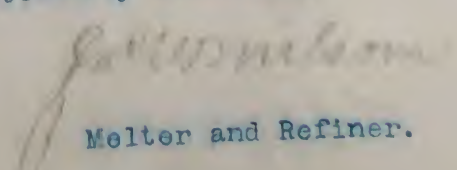
Borax glass, ground	20 bbls.
Bicarbonate of soda	25 "
Charcoal, MXX, for gold	7 bbls.
" MBXX " silver	22 "
" granular	1 "
	7 "
Nitre	500 lbs.
Silica	2000 "
Bone ash	1 bbl.
Cryolite (Greenland)	

Miscellaneous: (continued)

Hoffman's extra heavy clamps	2 doz
Steel spatulas, 3" blade	1 "
" " 6" "	1/2 "
" " 12" "	1/2 "
Wood stoppers, assorted	2 lbs.
Oilers, brass	1 doz.

* Samples to accompany all starred articles.

Respectfully submitted,



Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

April 27, 1909.

Hon. Frank M. Downer,
Superintendent, U. S. Mint,
Denver.

Sir:

The Melter and Refiner's department is in need of half a dozen carborundum rubbing bricks for leveling and smoothing the grinding bed of our Elspass mill, and for the information of The Carborundum Co. of Niagara Falls, N. Y., the makers of said bricks, I submit the following facts, so that they may be enabled to give us the benefit of their judgment as to the grain and grade of said bricks:

The ring or tread that we desire to grind level is made of steel, quite hard, is five feet and four inches in diameter on the outside, and width of face to be ground seven inches. The work will be fed automatically, and the speed at which the bed will turn will be from 25 to 28 revolutions per minute. Our guess (and that is all it is) is that we need No. 210 Rubbing bricks, 8x4x4 inches, with grain of 30 and grade, Scale M. The work will be all horizontal surface work.

Very respectfully,

John W. ...
Melter and Refiner.

Print of the United States at D E M V E K

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the Month of April, 1909.

GOLD

[illegible]

SILVER.

[illegible]

CORRECT:

May 1

1909

Superintendent

Melter and Refiner.

U. S. MINT SERVICE.
Form No. 65.
Ed. Oct. 22-08-5001-8 x 10 3/4.

H

MELTER AND REFINER'S OPERATIONS.

Mint of the United States

At Denver, Colorado, May 1st, 1909

The following statement shows in standard ounces the total amount of bullion in the different forms delivered to the Melters of this Department during the month of April 1909, and the amount of metal returned in ingots, bars, etc., and recovered with the apparent losses and gains:

METAL OPERATED UPON.	WEIGHT OF METAL.			RECOVERY.				
	DELIVERED TO THE MELTERS.	RETURNED BY MELTERS IN INGOTS, BARS.	RETURNED IN TOPS, BARS, CONDENSED.	APPARENT GAIN.	APPARENT LOSS.	FROM SWEEP.	FROM OTHER SOURCES.	APPARENT NET LOSS.
	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.
Gold Ingots,	222.025.79	217.705.19	4.226.71		4.389	5109		37.15
Gold Bars,								
TOTAL,								
Silver Ingots,	228.976.82	225.170.40	3.586.88		225.49	9007		125.92
Silver Bars,								
TOTAL,								

I certify the above to be a correct statement.

Approved:

Dissemination.

Director of THE MINT, Washington.

Melter and Refiner.

Stand. vza.

1.23.

SWL

MINT

Denver

Melter and Refiner's

April, 1909

Bush, Wm.			30	Leave
Campbell, A.R.	1	1	30	"
Chaffee, D.		1		"
Dakin, C.W.		7		"
Hetrich, J.M.		3		"
McElroy, A.B.	1			"
O'Brian, W.S.	6			Sick
Schell, E.P.		3		Leave
* Shields, B.G.	4			"
Spencer, G.N.	1	3	30	"
St. John, F.	1	6		"
Stoddard, X.T.	1		30	"
Whitaker, S.R.		5		"
Whitehead, H.R.		1	30	"
Wirth, B.P.	1	7		"

* Shields on pay-roll of U.S. Assay office, New York, after April 15th

1. Product: a. Gold
b. Silver

102,649.78 Pine 625,
69,726.40 " "

Total 238,577.08

2. Costs:

a. Labor	\$2083.78
b. Crucibles	128.00
c. Acids	444.25
d. Supplies	265.51
e. Mitts, gloves, aprons	31.00
f. Chemicals	15.00
g. Sweeps cellar	248.00
h. M. & R. Gen'l	802.53
i. Fuel	190.30
j. Power	674.75
k. Repairs	150.00
l. Light & ventilation	100.00
m. Incidentals	4.00
n. Assays	335.74
o. Sick leave, vacation & holidays	60.52

Total \$4998.17

3. New Equipment

55.60

Total expenses \$5054.77

4. Fine bullion, .992 & over, Denver Ref'y, silver	22,150.00
Deposits	2,485.16

Total fine tollion 101,635.16

5. Slimes, Assayers & Sweeps bars, &c, no charges	101,635.16
6. Crude bullion at 100%	77,892.44

6. Crude bullion at	7-1/2¢ per oz.	339.93
7		37.17
6-1/2		34.62
6		2.75
5-1/2		118.90
5		44.24
4-1/2		6,170.93
4		131,937.35
3-1/2		45.62
2-1/2		112.93
2		4,908.09
1-1/2		46.09
1		12,850.87
3/4		32.55
1/2		4,442.83

Total crude bulion 191,206.79

Total amount operated upon 730,814.39

	Total amount operated upon
7. Cost per ounce, total operated upon	.013478
8. Average " " " " "	.013506
9. Cost per crude ounce	.026128
10. Average " " "	.021044

b. Silver 225,170.45

Total 451,002.59

2. Amount of good ingots: a. Half Eagles 217,705.19
 b. Quarter Dollars 225,170.45
 Total 442,875.64

3. Cost of Ingots:	Gold		Silver		Total
	Total	Per oz.	Total	Per oz.	
a. Labor	325.20	.001772	453.02	.002011	838.92
b. M. & R. Gen'l	95.93	.000440	112.50	.000499	208.33
c. Mitts & gloves	4.75	.000021	6.00	.000026	10.75
d. Crucibles	19.84	.000058	24.00	.000106	36.84
e. Sweeps cellar	8.32	.000038	9.85	.000043	18.23
f. Supplies	9.47	.000045	10.32	.000046	19.85
g. Fuel	32.79	.000150	40.20	.000178	72.90
h. Power	22.00	.000133	34.06	.000151	63.06
i. Light & Van.	9.81	.000044	11.28	.000050	20.89
j. Repairs	24.02	.000110	28.18	.000125	52.20
k. Incidentals	0.00	.000000	0.00	.000000	0.00
l. Sick leave &c	13.30	.000061	15.61	.000069	28.91
m. Alloy, copper	122.23	.000564	79.94	.000355	202.87
Totals	\$748.73	.003439	\$825.02	.003663	\$1573.75

42.74

4. New Equipment

Total expense

\$1616.49

5. Percentage of good ingots: a. Gold 98.0
 b. Silver 98.3

6. Average cost of ingots, per oz. for 10 months: a. Gold .003567
 b. Silver .003919

7. Cost distributed as follows: a. Half eagles \$748.73
 b. Quarter Dollars 825.02
 Total \$1573.75

SWEEPS CELLAR

1. Product: a. Gold std. ozs. 127.08
 b. Silver " " 322.78
 c. Avdr. lbs., Tailings 7,929

2. Costs: a. Labor \$182.75
 b. Power 16.61
 c. Light & van. 20.00
 d. Supplies 4.76
 e. Repairs 36.45
 f. Incidentals 0.00
 g. Sick leave &c .75
 Total \$261.32

3. New Equipment
 Total expense \$261.32

4. Tailings contained: a. Gold 22.06
 b. Silver 224.65

5. Percentage of extraction: a. Gold, 95.3 b. Silver, 92.9
 6. Departments charged as follows: a. Refinery \$243.09
 b. Ingot 18.23

U. S. MINT SERVICE
Form No. 219
Ed. Feb. 3-05-000-8 x 10 1/2.

MELTERS AND REFINERS OF BULLION BALANCES.

Mint of the United States at DENVER

Gold and Silver Bullion Balances in the Melter and Refiner's hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of May, 1909.

GOLD.

Received	Balance	May 1	STANDARD OUNCES.			Delivered	Balance May 29, 1909	19	STANDARD OUNCES.		
			May 1	19					May 1	19	
Contained in Gold Deposits			300	66	453	547			266	059	910
Contained in Silver Deposits			6	6	235	155					
Contained in			8		101	595					
Clippings, blanks, etc.			81		060	698					
					691	320					
Salt Lake Dep.			6		259	896					
Gold Exchg. bars					47	707					
Silver "					1	763					
Con'd coin			3		100	490					
			471		952	171			205	811	974
									471	952	171

SILVER.

Received	Balance	May 1	STANDARD OUNCES.			Delivered	Balance May 29, 1909	19	STANDARD OUNCES.		
			May 1	19					May 1	19	
Contained in Gold Deposits			270	9	770	88			176	896	80
Contained in Silver Deposits			22		811	11					
Contained in			45		962	85					
Clippings, blanks, etc.					091	30					
Salt Lake Dep.			6		572	51					
Gold Exchg. bars					13	85					
Silver "					90	72					
Con'd coin			6		227	20					
			262		975	02			185	504	90
									362	572	02

CORRECT:

June 1, 1909.

Superintendent.

Melter and Refiner.

MELTER AND REFINER'S OPERATIONS.

Mint of the United States
At Denver, Colorado, June 2nd, 1909

The following statement shows in standard ounces the total amount of bullion in the different forms delivered to the Melters of this Department during the month of May, 1909, and the amount of metal returned in ingots, bars, etc., and recovered with the apparent losses and gains:

METAL OPERATED UPON.	WEIGHT OF METAL.		RECOVERY.		APPARENT NET LOSS.	APPARENT TOTAL GAIN.
	DELIVERED TO THE MELTERS.	RETURNED BY MELTERS IN INGOTS, BARS.	RETURNED IN TOPS, BARS, CONDENSED.	APPARENT GAIN.	APPARENT LOSS.	
	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.
Gold Ingots,	173.638.650	169.223.400	1.371.370		4.415.250	
Gold Bars,						
TOTAL,	173.638.650	169.223.400	1.371.370		4.415.250	
Silver Ingots,	124.231.735	120.639.970	3.591.765		3.591.765	
Silver Bars,						
TOTAL,	124.231.735	120.639.970	3.591.765		3.591.765	

I certify the above to be a correct statement.

J. W. Milburn
Melter and Refiner.

Approved:

Superintendent.

To the DIRECTOR OF THE MINT, Washington.

REFINERY

1. Product: a. Gold	131,751.22	fine ozs.
b. Silver	82,432.62	" "
Total	214,243.89	" "

2. Costs:

a. Labor	\$1762.83
b. Crucibles	130.00
c. Acids	485.64
d. Supplies	378.62
e. Mitts, gloves, aprons	64.75
f. Chemicals	25.00
g. Sweeps cellar	177.83
h. M. & R. Gen'l	192.75
i. Fuel	156.30
j. Power	585.23
k. Repairs	140.97
l. Light & ventilation	100.00
m. Incidentals	0.30
n. Assays	306.51
o. Sick leave, vacation & holidays	132.02

Total

\$4473.60 (Including settlement costs of \$1172.80)

3. New Equipment

55.36

Total expense

\$4533.96

4. Fine bullion, .992 & over, Denver Ref'y, silver	82,025.00
" " " " " Deposits	2,714.51

Total fine bullion

29,639.51

5. Slimes, assayer's bars, sweeps bars, no charges	47,210.07
--	-----------

6. Crude bullion at 7-1/2¢	47.48
6-1/2	36.95
5-1/2	258.04
5	26.71
4-1/2	59.99
4	89,675.40
3-1/2	145.15
2-1/2	1,455.08
2	8,900.60
1-1/2	42.17
1	19,392.73
3/4	113.65
1/2	5,884.11
4/10	29.72

Total crude bullion

126,067.70

Total amount operated upon 202,917.34

7. Cost per ounce total operated upon	.022071
8. Average ditto	.013123
9. Cost per crude ounce	.035525
10. Average ditto	.021863

1. Amount bullion melted:	Gold	124,231.75	
	Silver	173,638.65	
	Total	297,870.40	
2. Amount of good ingots:	a. Half Eagles	120,639.90	
	b. Quarter Dollars	169,223.40	
	Total	289,863.30	

	Gold		Silver		Total
	Total	Per oz.	Total	Per oz.	
a. Labor	\$358.55	.002955	\$297.88	.001759	\$654.23
b. M&R Gen'l	108.32	.000297	90.43	.000534	198.75
c. Mitts, gloves	8.00	.000066	6.25	.000036	14.25
d. Crucibles	16.84	.000139	16.00	.000094	32.84
e. Sweeps cellar	36.33	.000301	30.33	.000179	66.66
f. Supplies	14.59	.000120	5.44	.000032	20.03
g. Fuel	20.10	.000166	23.70	.000140	43.80
h. Power	31.60	.000261	26.38	.000155	57.98
i. Light, vent'n	10.20	.000090	9.10	.000053	20.00
j. Repairs	17.31	.000143	14.45	.000085	31.76
k. Incidentals	0.00	.000000	0.00	.000000	0.00
l. Sick leave &c	33.55	.000278	28.01	.000165	61.56
m. Alloy copper	26.55	.000220	43.95	.000259	70.50
Totals	\$680.84	.005641	\$591.72	.003496	\$1272.36

(Settlement costs in above amounts, \$100.24)

4. New equipment			13.50
	Total expense		\$1285.86
5. Percentage of good ingots:	a. Gold	97.1	
	b. Silver	97.4	
6. Average cost of ingots for 11 months:	a. Gold	.003666	
	b. Silver	.003893	

7. Cost distributed as follows:	a. Half eagles	\$680.64
	b. Quar. Dollars	591.72
	Total expense	\$1272.36

SWEEPS CELLAR

1. Product:	a. Gold, std. ozs.	141.64
	b. Silver " "	292.23
	c. Tailings, avoird. lbs.	8,600

2. Costs:	a. Labor	\$185.19
	b. Power	21.11
	c. Light, vent'n	24.02
	d. Supplies	30.59
	e. Repairs	.78
	f. Incidentals	0.00
	g. Sick leave &c	8.50
	Total	\$270.19

3. New Equipment	0.00
Total expense	\$270.19

4. Tailings contained:	a. Gold	31.72	std. ozs.
	b. Silver	289.58	" "

5. Percentage of extraction:	a. Gold	81.7
	b. Silver	50.2

6. Departments charged as follows:		
	Refinery	\$177.83
	Ingot room	66.66
	Cellar	25.70

Total \$270.19

MINT OF THE UNITED STATES AT DENVER
MELTER AND REFINER'S DEPARTMENT,

Report of the Melter and Refiner of the Denver Mint for the year
ended June 30, 1909

The Melter and Refiner received from the Superintendent during the
fiscal year ended June 30, 1909:

GOLD ACCOUNT

	Standard ozs.	Standard ozs.
In Bullion		2,761,826.487
Returned prior to settlement	2,716,326.627	
Returned at settlement	<u>246,209.592</u>	<u>2,962,536.210</u>
Surplus in Gold recovered		309.733

SILVER ACCOUNT

In Bullion		2,966,357.37
Returned prior to settlement	2,766,470.74	
Returned at settlement	<u>201,302.66</u>	<u>2,967,773.42</u>
Surplus in Silver recovered		1,416.23

The surplus was recovered from unreported fractions of assays,
from the difference between standard and actual fineness of ingots
delivered, and from fractional gains in weights of deposits.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT.

The following melts were made:

	Gold	Silver	Gold and Silver	Total
Deposits	4,175	623		4,798
Anodes	144	676		820
Cathode Ingots	50	25		75
Ingots	530	737		1,247
Sweats			926	926
Mint bars	310	114		424
Slimes			550	550
Settlement bars	20	28		48
Miscellaneous			176	176
Totals	5,209	2,203	1,652	9,064

Ingot Melts condemned: None. Remelts: Gold, one; Silver, none.

The Sweeps Cellar extracted 1,436.204 standard ounces of gold and 3,199.24 standard ounces of silver, and produced 974 sacks of mill tailings which contained 324.562 standard ounces of gold and 1,949.86 standard ounces of silver.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

3

Refinery operations, covering a period of nearly ten months, were
as follows:

GOLD ACCOUNT

	Standard ozs.	Standard ozs.
Delivered to the Refinery		2,042,325.755
Returned prior to settlement	1,974,442.981	
Returned at settlement in bars	69,087.602	
Returned " " in sweeps	64.858	2,043,525.441
Surplus in Gold returned		599.686

SILVER ACCOUNT

Delivered to the Refinery		1,839,604.62
Returned prior to settlement	1,729,610.04	
Returned at settlement in bars	109,215.78	
Returned " " in sweeps	521.03	1,839,346.85
Loss in Silver operations		257.77

The Refinery also recovered 39.35 ounces of sponge Platinum,
and 1,352 Avoirdupois lbs. of electrolytic copper.

Earnings of Refinery: Charges collected	\$87,115.17
Surplus bullion recovered	17,581.54
Platinum	385.87
Copper	199.42
Total	\$105,281.50

For millions
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

Accounting for Surplus returned by Melter and Refiner for 1909
fiscal year:

	Standard ozs. Gold	Standard ozs. Silver
Gain on Ingots	116.320	1,406.84
" " Deposits, gross 84.52	65.730	18.78
" " in Refinery, excluding gain on deposits	533.956	
" " Deposit Melting Room--metal	231.480	144.99
" " " " " " tailings	30.550	110.00
" from excess returned by Assayer	8.570	187.12
" " settling well--metal	98.540	48.60
" " " " " " tailings	70.380	77.93
Total gain	1,156.026	1,994.26
Surplus	909.752	1,416.03
Operating wastage	246.294	578.23

The gain from unreported fractions of assays was 460.56 fine ounces of gold; and the amount operated upon that produced said surplus was 2,042,995.755 ounces, practically all of which was reported by the Assayer to the half point. The gain, therefore, was less than one-quarter (.235) of a point on each assay; and the apparent operating wastage in percentage of legal allowance was, Gold, 9.92%; and Silver, 12.99%.

U. S. MINT SERVICE.
FORM NO. 210
Ed. 6 10 1900 500—8 x 10 1/4

MELTER AND REFINERS OF BULLION BALANCES.

Mint of the United States at DENVER

Gold and Silver Bullion Balances in the Melter and Refiners hands and Receipts from and Deliveries to the Superintendent of the Mint by him during the month of June, 1909.

GOLD.

Received	STANDARD OUNCES.				Delivered	STANDARD OUNCES.			
	Balance	June 1 1909	205	811	974	Ingots	132	698	120
Contained in Gold Deposits			50	487	665	Bars, Fine		468	744
Contained in Silver Deposits			4	381	093	Bars, Standard			
Contained in				9	280	Bars, Unparted			
Clippings, blanks, etc.						Bars			
						Sweeps		64	852
Sweeps bar						" Refinery		56	205
& Con'd coin			101	989	750	Ingot			
Seattle Dep.			8	015	230				
Salt Lake "			7	852	925				
G&S Exchg. bars				39	925				
Surplus in Set.				909	732				
			379	497	599				
						Balance delivered in settlement	246	209	592
							379	497	599

SILVER.

Received	STANDARD OUNCES.				Delivered	STANDARD OUNCES.			
	Balance	June 1 19	185	504	90	Ingots	48	341	05
Contained in Gold Deposits			8	585	93	Bars, Fine		364	38
Contained in Silver Deposits			16	582	66	Bars, Standard			
Contained in				4	57	Bars, Unparted			
Clippings, blanks, etc.						Bars			
						Sweeps		521	03
Sweeps bar			30	332	35	" Refinery		134	53
Seattle Dep.			7	746	13	Ingot			
Salt Lake "				454	78				
G&S Exchg. bars				56	30				
Surplus in Set.			1	416	03				
			250	683	65	Balance delivered in settlement	301	302	66
							250	683	65

CORRECT:

July 1, 1909.

Superintendent.

Melter and Refiner.

Arnold, R.G.	9			Leave
Bartlett, H.D.	8	4		"
Borstadt, Geo.	8			"
Bush, Wm.	8	4		"
Campbell, A.R.	10	4		"
Chaffee, D.	10 9	4		"
Crary, J.H.	1			"
"	13			Sick
Dakin, C.W.	8	4		Leave
Dardis, W.N.	8			"
Gray, Geo. B.	8	1		"
Howard, M.	9	4		"
Lindhard, J.A.	10			"
McElroy, A.B.	9	4		"
Morrison, R.B.	9			"
O'Brian, W.S.	9			"
Pughe, J.F.	2	3		"
Ryan, P.		3		"
Smith, E.S.	9	4		"
Schell, E.P.	10			"
Spencer, G.W.	9	1	30	"
St. John, F.	1			"
Stoddard, X.T.	8			"
Taggart, E.H.	8			"
Whitaker, S.R.	8	3	30	"
Whitehead, H.R.	9	5	30	"
Winn, H.H.	6			"
Wirth, E.P.	8	5	30	"
"	10			Official leave (Phila. ret'mt)

U. S. MINT SERVICE.
FORM NO. 65.
Ed. Oct. 22-08-500.—8 x 10½.

MELTER AND REFINER'S OPERATIONS.

of the United States

At Denver Colorado, July 1st, 1909

The following statement shows in standard ounces the total amount of bullion in the different forms delivered to the Melters of this Department during the month of June, 1909, and the amount of metal returned in ingots, bars, etc., and recovered with the apparent losses and gains:

METAL, OPERATED UPON.	WEIGHT OF METAL.			RECOVERY.		
	DELIVERED TO THE MELTERS.	RETURNED BY MELTERS IN INGOTS, BARS.	RETURNED IN TOSS, BARS, CONDENSED.	FROM SWEERS.	FROM OTHER SOURCES.	
	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.
Gold Ingots,	216.704.360	211.132.990	5.525.910	45.460	150,947	225.842
Gold Bars,	421.870.	421.870				
TOTAL,	217.126.230	211.554.860	5.525.910	45.460	150,947	225.842
Silver Ingots,	65.753.79	64.453.75	1.238.99	59.05	282.61	222.60
Silver Bars,	345.95.	345.95				
TOTAL,	66.099.74	64.801.70	1.238.99	59.05	282.61	222.60
						4446.16

I certify the above to be a correct statement.

William L. ...
Melter and Refiner.

Approved:

Superintendent.

To the DIRECTOR OF THE MINT, Washington.

Annual Settlement, 1904

Gold Dep.	4624		298 91	752	233	249 755	77 38
1909	5		313 86	752 ²	230 ²	232 421	80 38
	9		299 52	747 ²	239 ²	248 768	79 70
4630			278 56	751	237	232 442	73 35
	2		294 91	611	372	200 211	121 29
	9		289 00	745 ²	241 ²	239 388	77 54
4640			272 68	743 ²	242 ²	225 263	73 47
	1		282 21	744 ²	242 ²	233 450	76 02
	2		262 46	745 ²	242 ²	217 404	70 71
4651			329 90	746 ²	225 ²	273 638	82 63
			285 44	746 ²	237 ²	237 390	75 32
4660			238 02	748	238	247 687	78 60
	5		298 91	746	243	247 783	80 70
	6		280 70	745 ²	242 ²	232 513	75 67
4673		1	042 23	853 ²	033	235 320	38 21
	4		750 07	796 ²	029 ²	233 811	24 22
	5		622 02	938 ²	054 ²	648 823	37 66
	6		637 64	945 ²	047	662 878	33 23
	7		506 66	812 ²	030 ²	457 421	17 17
	9		300 77	747	236	240 638	70 53
4680			273 72	746 ²	239	227 033	22 88
	1		273 23	743 ²	224 ²	225 729	21 20
	4		178 53	790	184	152 702	13 60
	5		241 42	816 ²	135	312 520	22 53
4691			661 72	837 ¹		222 120	

Forward

Gold Dep.	4636		294 31	742	246 ²	242 642	80 60
1900	7		177 14	744 ²	245 ²	146 534	48 31
	8		218 00	853	133 ²	206 615	32 33
	4710		732 83	846	011	688 860	8 95
	1		877 80	846	011 ²	824 944	11 21
	2		301 86	743 ²	244	249 369	81 83
	6	1	110 10	810	036	999 090	44 40
	8		752 94	941 ²	047	787 658	39 32
	4720		639 75	798 ²	033	567 600	23 45
	1		555 41	787	033	485 675	20 36
	2		560 04	840	047	522 704	29 24
	3		280 21	739 ²	250	230 239	77 83
	4		296 06	740	250	243 427	32 23
	5		275 46	736	250	225 265	76 51
	6		697 23	755	197	584 898	152 61
	4732		743 15	938 ²		773 897	
	3		257 13	739 ²	246 ²	211 275	70 48
	5		272 22	731	256 ²	221 671	77 78
	7		247 37	745	244	204 767	67 06
	8		692 17	728 ²	260	560 273	199 99
	4742	1	031 77	799	029 ²	807 104	33 40
	3		817 45	755	031	517 971	21 61
	4		6 7	937	049 ²	640 309	34 30
	5		681 19	937	061 ²	694 171	39 15

70 247 82

Forward

50 30 1 834

2949 00

Gold Dep.

4746

722 36

848

012²

687 935

10 15

1909

7

646 61

840²

010²

610 327

7 54

8

261 79

735

255

213 787

74 17

4756

530 40

932²

570 430

7

373 84

894

371 347

8

370 88

731²

356²

280 165

77 50

9

235 18

738²

251

192 270

65 58

4760

212 12

813

176

181 815

61 07

1

372 07

611

378

352 594

155 44

2

291 52

430²

180²

130 447

51 57

4770

260 20

732²

255²

219 098

76 42

3

1

266 65

205

011²

254 350

17 27

4

742 27

223

253

202 101

27 27

5

600 32

211

070

547 101

10 10

6

647 10

733

072

562 010

53 00

7

661 22

800

601 020

8

404 24

246

580 003

9

188 47

736²

241

130 524

51 50

4780

273 22

732²

253²

220 007

74 00

1

278 31

734

252

220 700

25 00

2

241 00

732

250

110 700

25 00

3

227 30

932

247

20 10

25 00

4

220 50

741²

241²

180 20

25 00

5

552 25

728²

22

202 10

27 18

29 783 376

4202 24

Forward

29 723 376

4 200 24

6-10-1	4786	552 60	726 ²	238	450 914	147 71
1929	7	608 39	651	015 ²	575 853	9 13
	8	573 32	850 ²	009	541 787	5 73
4916		309 14	736 ²	250 ²	243 977	92 98
	7	244 30	741 ²	243 ²	201 859	66 83
4824		160 70	625	455	93 741	81 84
4836		252 39	738 ²	160	210 850	46 60
	7	756 78	809	036	662 283	32 47
	8	923 69	939 ²	083	976 954	55 11
	9	311 93	939	051	324 996	17 67
4840		977 20	834	038	905 558	41 25
	1	194 60	755	051	158 916	54 26
	2	264 95	737 ²	201	217 111	75 89
	3	308 42	731	950 ⁶	334 114	99 47
4854		604 13	925		712 755	
	7	225 14	755 ²	254 ²	191 638	66 40
	8	172 79	613	362	117 689	70 65
4862		206 05	755	351	258 609	85 91
	9	316 72	755	252	258 808	83 40
	1	255 12	715	240	441 745	132 10
	2	581 43	220	247	441 136	151
	3	271 18	787	024	516 936	1 16
	4	252 45	705	024	587 702	10 60
	5	192 34	730	199	152 256	26 50

39 272 731

ward

392727.1

570400

Old Dep.	4869		313 36	915 ²	171 ²	283 939	59 71
1909	4875		779 93	912		790 329	
	6		228 28	547 ²	189 ²	138 870	40 06
	7		955 98	790 ²	039 ²	859 669	41 25
	8		692 59	720 ²	032 ²	554 442	25 00
	9		724 33	735	033 ²	593 489	26 06
	4880		422 70	713	037	337 220	17 37
	1		897 55	921 ²	042 ²	918 991	42 36
	2		801 20	439 ²	354	391 352	226 11
	3	1	037 04	437 ²	253 ²	504 116	202 29
	7		265 85	736 ²	351 ²	217 553	74 22
	8		272 34	739	248	223 621	75 04
	9		317 82	740 ²	247 ²	261 495	87 40
	4897		258 84	695 ²	246	200 025	70 76
	8		306 53	736	249 ²	250 672	84 27
	9		356 78	741	248	211 413	70 12
	4900		625 15	734	219 ²	505 844	102 46
	5		282 20	736	234	250 776	72 64
	6		245 24	737	354	200 924	60 21
	4912		435 60	550 ²	274 ²	266 442	122 23
	4924		689 21	244 ²	044 ²	732 607	74 05
	5		675 72	955	035	717 330	20 37
	6		921 21	750 ²	031	777 022	30 29
	7		610 07	763	031 ²	522 626	21 56

ward

4095722

712400

Forward

Gold Dep.	4928	681 82	791 ²	018	546 856	12 43
1909	9	793 41	791 ²	017 ²	697 760	15 42
	4939	311 35	747	240	258 420	83 02
	4940	290 47	746 ²	241	240 928	77 78
	5	994 49	933	1	030 954	
	7	302 91	746	244	251 078	82 12
	8	307 08	749 ²	240 ²	255 729	82 05
	4951	254 53	745 ²	242	210 877	68 45
	8	305 71	748 ²	240	254 248	81 52
	5	1	124 41	764	801 ²	954 499
	4979	978 47	879	044 ²	955 639	42 37
	4980	1	008 36	875	045	980 369
	1	278 20	932	055	1	019 501
	2	293 44	733 ²	251	240 783	81 83
	3	264 87	736	251	233 675	79 47
	4	261 06	738	251	232 407	81 42
	5	237 02	738	251	194 356	66 10
	4994	272 02	754	185	237 011	55 28
	6	630 70	808 ²	013 ²	557 525	9 51
	7	693 20	809 ²	012 ²	622 724	9 62
	8	1	016 10	804 ³	1	081 462
	9	230 55	737 ³	253 ²	238 073	81 50
	5000	245 05	742	245 ²	202 639	67 88
	1	227 11	736	225	185 735	83 59

61 347 670

Forward

61 557 676

9 004 10

Gold Dep.	5009	282 54	736 ²	252 ²	231 211	77 39
1900	5010	704 26	755	233	531 242	189 44
	4	1 066 17	853	046	1 010 472	54 40
	5	720 47	931 ²	059 ²	745 686	47 27
	6	565 23	930	063	524 071	50 50
	7	261 27	729	040	231 242	17 22
	8	282 25	736	255	820 017	70 34
	9	272 02	735	255	227 043	72 07
	5020	935 62	743	232	772 072	246 00
	2	352 02	615 ³	570 ²	240 762	144 71
	3	703 38	200 ³		703 124	
	5	377 43	734	253 ²	222 252	22 25
	6	217 15	733	255 ²	172 222	21 24
	5035	221 25	735 ²	254 ²	220 217	72 00
	6	247 22	742 ²	242 ²	222 222	67 22
	5045	342 70	917 ²	170 ²	311 222	25 20
	2	242 20	505	460	142 212	122 22

Forward

68 418 317 10 448 59

Flowers

68 4 18 3 17

11 442 53

Flowers	Dep.	500	450	55	173	547	95	535	175	13
1900	1	596	43	173 ⁶	540	100	520	914	74	
	2	520	90	173 ²	539	100	999	196	46	
	3	497	84	173	540	95	657	197	39	
	4	346	71	173	542	47	423	93	74	
	5	494	96	174 ²	543	95	631	188	56	
	6	532	95	173 ⁵	545	103	788	204	02	
	7	551	57	176 ⁶	547 ⁸	103	656	202	82	
	8	514	10	175	549	99	963	195	35	
	9	540	33	174 ⁹	548 ⁸	104	773	207	44	
500		479	01	175	549	86	502	170	57	
	1	310	45	175	543 ⁸	65	198	132	93	
	2	529	00	517	526 ²	116	102	192	97	
500		300	60	046	527 ²	12	607	369	11	
		300	00	265	502	300	541	650	04	
		430	09	110 ⁵	542 ²	49	325	276	65	
500		370	47	081	455 ⁵	200	111	207	96	
		115	10	534	607	450	305	765	69	
		915	10	075	577 ⁸	65	441	761	56	
		787	11	057	577 ⁵	65	138	761	90	
		315	01	575 ⁵	577	75	450	911	04	
		000	00	075 ⁵	574	90	419	351	04	
		051	01	075 ⁵	575	67	542	207	00	
		000	00	075 ⁵	575	67	505	025	00	

8

71 221 941 20 582 3

Forward

71 221 941. 20 586 86

Silver Dep. 550

1909

570

500

9

PORTLAND

1	046 88	074	870 ³	86 079	1	017 51
	021 53	074 ²	860 ²	76 221		017 51
1	578 09	058	909	37 254		507 97
3	047 23	334 ²	638 ²	363 460		731 10
4	062 69	057	306	60 070		307 31
5	175 42	379	601	73 071		115 14
8	013 34	332 ²	634	330 443		043 79
7	813 69	329 ²	651 ³	77 511		134 38
	834 90	479	510	124 365		133 05
1	329 16	310	354	73 440		106 70
4	004 05	060 ³	962 ²	03 610		070 40
8	024 97	060 ³	969	60 020		027 50
6	690 60	070	530	52 933		057 03
7	102 17	069 ²	271	05 650		077 57
8	125 45	069 ²	271	06 020		077 57
9	562 07	805	410	130 007		350 05
	654 07	805 ²	411	140 233		100 10
1	626 60	805	407	140 041		100 07
2	123 43	806	413	41 025		04 10
3	418 02	806 ²	413	00 107		107 57
4	564 50	807	413	150 635		004 00
5	560 50	805	410	150 231		000 50
6	559 57	804	407			00 50
7	310 73	130 ²	805			100 10

73 940496 31 908 23

Forward

73 940 496 31 908 23

211-Sep.	580	357 14	069 ⁸	859	27 579	340 87
1000	590	744 82	069 ⁸	861	57 516	712 54
	1	745 95	070	860 ²	58 018	714 86
	2	713 60	070	859	55 502	680 39
	3	966 47	318	848	341 486	695 85
	4	296 93	018 ⁸	863	6 103	264 72
	5	413 19	053	893	24 332	409 97
	7	563 02	414 ⁶	542 ⁶	268 513	351 43
	8	1 204 70	456	952	74 959	1 247 53
	9	822 07	253	983	42 410	843 07
820		886 15	322 ²	651	316 246	642 41
	7	800 29	387	594	86 485	132 65
	5	175 61	466	524	90 926	102 24
	2	276 53	497	572	126 409	177 65

75 524 920 39 244 7

Forward

Forward

Seattle

524920 3974431

Re-deposits 4957

4957

4958

9

4960

1

2

3

4

5

6

7

636 46

937

054

662 625

38 18

500 67

916

078

509 570

43 39

329 12

916²

078

335 153

28 52

546 52

914

082

555 021

48 79

544 67

816²

175

494 136

105 90

1 043 54

819²

138

950 201

160 00

957 45

819²

138

871 811

146 80

1 129 68

819²

138

1028 636

173 21

716 75

993²

004

791 212

790 52

996

002

874 842

848 60

996

002

939 117

Forward

5337744 39771

Forward

83537 244 39990 10

Salt Lake	4800	15 20	536 ²	443	247 505	204 37
Re-deposit	1	49 77	810 ²		314 987	
	2	467 68	516 ²	467	268 396	242 67
	3	073 22	793	007	945 626	8 34
	4	097 58	795	007	969 529	8 53
	5	163 54	798	004	1 031 672	5 17
	6	737 99	772 ²	117	633 432	95 93
	8	709 08	316 ²	611	249 359	481 38
	9	797 64	242	692	214 476	613 29
	4810	762 66	261 ²	664	221 595	562 67
	1	872 07	224 ²	712	217 533	689 90
	2	931 66	225	713	232 915	738 08
	3	800 70	228	707	202 844	628 99
	4862	691 73	928 ²		713 634	
	4871	636 45	484 ²	483	342 611	341 55
	4	963 90	233	688	249 543	736 84
	5	983 23	232 ²	688	254 181	752 15
	6	955 79	234	691	248 505	733 33
	7	715 03	230	691	182 218	547 44

91 277 830

47 18 75

Forward

91277 865 47381 13

Forward

Refinery	1	5	2	193 65	961 ²	038 ²	2	343 549	93 83
Settlement	2	12	5	318 75	957	104 ²	5	064 631	617 56
Gold	3	5	2	159 90	955 ²	044	2	293 093	105 59
	4	14	5	510 19	936	124 ²	5	118 970	762 93
	5	7	2	844 35	957	042 ²	3	024 498	154 51
	6	6	2	498 20	945 ²	053 ²	2	624 497	149 56
	7	8	2	857 50	957	216	2	085 975	1 003 33
	8	25	2	007 50	958	039 ²	2	136 872	89 16
	9	16	2	212 00	927 ²	070	2	279 529	172 01
	10	36	6	521 90	999 ²		7	235 665	
	11	16	6	555 35	971	115 ²	6	544 122	826 71
	12	15	5	797 35	952	137	5	478 691	860 91
	13	22	3	895 40	993		4	297 924	
	14	5	3	945 45	951	042 ²	2	372 632	102 7
	15	6	2	591 10	932	054 ²		703 381	156 3
	16	5	2	137 75	933 ²	056 ²		292 196	124 0
	17	6	2	401 00	9016	073	2	443 664	104 7
	18	8	3	057 00	914	168	2	764 686	552 16
	19	3		750 75	911	061 ²		978 509	67 19
	20	11		435 90	935	167		952 118	97 79

Forward

154 064 664 53 511 7

Forward

155 054 662

82 511 98

Refinery	1	17	4	437 55	038 ²	963 ²	140 582	4	750 64
Settlement	2	19	4	875 50	028	951 ²	119 178	5	154 48
SEver	3	17	4	615 10	030	835	461 510	4	539 46
	4	9	2	417 00	053	932 ²	142 334	2	504 38
	5	17	4	478 50	023	926 ²	114 450	4	610 36
	6	17	4	440 50	018	945 ²	89 810	4	664 39
	7	17	4	416 40	049	918	240 448	4	504 72
	8	15	3	976 50	065 ²	881	289 400	3	892 55
	9	18	2	199 50	033 ²	943 ²	83 542	3	350 58
	10	16	4	235 40	045 ²	932	214 123	4	385 99
	11	15	4	069 30	084	890 ²	379 991	4	026 34
	12	48	4	675 00		999		5	189 25
	13	47	4	543 50		999		5	043 28
	14	6	5	214 00		999 ³		5	791 88
	15	5	4	283 50		999 ²		4	752 30
	16	14	3	525 50	957 ²	908 ²	225 240	3	556 79
	17	18	4	697 40	011 ²	977 ²	59 187	5	025 87
	18	18	3	132 00	016	941	55 620	3	274 68
	19	13	3	177 50	038 ²	899 ²	100 620	3	175 73
	20	7	1	873 40	038 ²	881	80 139	1	833 35
	21	9	2	322 00	025	908 ²	64 500	2	336 19
	22	10	2	706 55	081	793	183 443	2	384 77
	23	11	2	867 50	016	923	50 977	2	940 78
	24	13	3	439 00	034 ²	890 ²	121 928	3	402 69

158 280 334 148 616 41

Forward

158 280 334 148 656 113

Forward

Refinery	25	9	2	397 00	029	895	77 236	8	363 68
Settlement	26	18	4	540 00	098 ²	766 ²	426 877	3	866 06
Silver	27	6	1	609 05	184 ²	487 ²	339 855		871 56
	28	3	2	036 00	112 ²	249 ²	254 500		564 40

Forward

Refinery	1	43	2	613 00	015		43 650		
Settlement	2	5	3	679 00	015		61 300		
Copper	3	5	3	686 00	014		57 337		
	4	47	2	965 00	047 ²		156 486		
	5	5	3	115 00	032		110 755		
	6	3	2	060 00	021 ²		49 511		

Forward

129 911 441 746 342 45

Forward

917-441 286 342 66

Half Eagle	497	69	6	002 88	6	002 880	
Ingots	9	69	6	048 76	6	048 760	
	9	69	6	011 14	6	011 140	
	500	69	6	030 34	6	030 340	
	1	69	6	001 70	6	001 700	
	2	69	6	042 20	6	042 200	
	3	69	6	021 70	6	021 700	
	4	69	6	042 11	6	042 110	
	5	69	6	011 65	6	011 650	
	6	69	6	031 92	6	031 920	
	7	69	5	988 97	5	988 970	
	8	69	6	020 24	6	020 240	
	9	71	6	180 75	6	180 750	
D. Dollar	728	65	4	027 15			4 027 15
Ingots	9	65	4	007 10			4 007 10
	730	65	4	020 40			4 020 40
	1	65	4	011 35			4 011 35
	2	65	4	015 15			4 015 15
	3	65	4	014 25			4 014 25
	4	65	3	994 40			3 994 40
	5	65	4	031 30			4 031 30
	6	65	4	131 20			4 131 20
	7	65	4	037 15			4 037 15

10

Forward

238 351 801 196 632 70

228 351 801 196 43310

Forward

Mass Melts	1	12	4	067 00	629	314	2	842 381	1	41893
	2	10	3	534 25	695 ²	243 ²	2	731 189		95621
	3	8	2	508 50	528 ²	339	1	473 046		94486
King	509			343 28	899 ³			343 212		
Assayer's	15			278 86	578 ²	319 ²		179 245		9899
Bars	17			338 55	541	321		203 506		12074
	18			310 20		992 ³				24216
Proof Gold	A			11 50	1000			12 777		
" Silver	B			375 45		1000				41716
Ingot Assay Samples	C			156 88	200			156 880		
Fine Silver	7			334 70		999				37121
Fine Gold	1			14 00	1000			15 555		

GRAND TOTAL

246 209 502 201 30244

S U M M A R Y

Gold Deposits	68	418 317	10	448 59
Silver "	7	106 603	28	795 72
Seattle Re-deposits	8	012 324		745 79
Salt Lake "	7	740 561	7	391 13
Ingot	78	434 360	40	289 45
Refinery settlement bars-Gold	63	776 857	6	130 75
" " " Silver	4	384 140	102	830 67
" " " Base		476 639		
" Fine Gold		15 555		
" " Silver				371 51
Mass Melts	7	046 616	3	320 00
Last Ingot Melt King		243 312		
Assayer's bars		382 751		561 89
Ingot Assay samples		156 880		
Brass Gold		12 777		
" Silver				417 13
Total amount delivered by M. & R. in settlement	246	209 592	201	308 66
under date of June 30, 1908				
Balance charged against M. & R. of same date	245	299 860	199	886 63
Surplus delivered in settlement		909 732	1	416 03

I N V E N T O R Y

July 1, 1909

Melter and Refiner's Department

M. & R. Office:

- 3 roll top desks
- 1 flat top desk
- 1 table
- 5 office chairs
- 1 revolving stool
- 1 - 24 drawer file case
- 1 - 2 compartment wardrobe
- 1 safe
- 3 rugs
- 1 letter press, stand, bath, and accessories
- 1 Oliver typewriter (#132,445), cover, and accessories
- 1 Millionaire calculating machine
- 1 Bates numbering machine
- 1 Jupiter pencil pointer
- 2 brass cuspidors
- 1 desk top on safe
- 2 waste baskets
- 3 desk lamps
- 1 dictionary and stand
- 1 .45 calibre Colt's revolver
- 1 Krag J. rifle
- 1 mirror
- 1 feather duster
- 1 drinking glass

shears, pencils, pens, ink, paper weights, rulers, sponges,
pins, erasers, ink-pads, clips, and other office accessories

Getting Gold	1	vol.
Metallurgy of silver, gold and mercury	2	"
Determinative mineralogy & blow-pipe analysis	1	"
Quantitative chemical analysis	2	"
Metallurgy of zinc and cadmium	1	"
The Metallographist	2	"
Richter's organic chemistry	2	"
Caloric power of fuels	1	"
Electro-chemical analysis	1	"
Manual of assaying	1	"
Kent's mechanical engineer's pocketbook	1	"
U.S. Geol. Survey No. 54	1	"
Reports of Director of Mint	8	"
Regulations Mint and assay offices	1	"
Annual report production of precious metals	1	"

Make-up Room:

2 flat top desks
 1 office chair
 2 stools
 1 No. 12 - 3000 oz. bullion balance
 1 No. 2 - 4000 " " "
 1 clippings pan & counterpoise, #12 balance
 1 small pan " " #12 "
 1 " " " " #2 "
 2 sets weights, .01 oz. to 400 ozs.
 2 - 12" electric fans
 7 trucks
 6 clipping boxes, copper lined
 17 ingot " "
 3 " " unlined
 15 copper lock boxes
 1 hammer
 1 set steel numbers
 1 dust pan and brush
 1 floor brush
 1 feather duster
 1 - 3 compartment steel locker
 1 vault step
 1 paint can and lettering brush
 18 - 500 oz. brass weights
 1 copper oil can
 1 coin scoop
 1 tin box for gold filings
 3 small tin boxes for filings
 1 Krag J. rifle

Refinery:

1 water-cooled rolling mill
 1 - 200 ton hydraulic press
 2 motor generator sets and switch boards, large
 1 " " " " " " small
 1 - 3/4 h.p. motor gold cells
 1 - 1/6 " " laboratory
 1 - 3/4 " " silver cells
 1 - 7-1/2 h.p. " elevator
 1 - 7-1/2 " " Chilean mill
 1 - 1/4 " " exhaust fan
 3 - 1/8 " " " "
 1 microscope
 1 analytical balance
 1 assay button "
 1 " pulp "
 1 bullion balance, 3' beam
 1 cupel furnace
 1 crucible melting furnace
 1 portable voltmeter
 1 " ammeter
 2 stationary recording ammeters
 1 pyrometer, with Heraeus element
 1 Alberine stone top table for weighing
 1 " " " " laboratory
 1 plate glass hood
 1 office desk
 2 " chairs
 1 lock case

Refinery (continued):

Laboratory supplies, acids, salts, and apparatus
platinum ware, (entire list).
70 graphite plates
3 doz. porcelain rods
301 hard rubber "
10 porcelain acid jars
8 " filters with cocks
2 " jars, small
32 " gold cells
22 earthenware silver cells
1 " acid jar with cock
1 " supply tank, silver cells
7 " filters
1 " acid jar
3 " pitchers
40 porous cells
4 Rockwell Eng. Co. melting furnaces
1 " " reverberatory furnace
2 gold boiling furnaces
57 #4 cups, graphite
147 #80 crucibles
50 #20 "
8 #10 "
36 #2 "
259 - 4" rings
106 - 2" "
41 gold stirrers
30 flat "
273 crucible covers
6 quarter slides
12 furnace arches
21 pedestals
19 carborundum burner tile
5 fire brick " "
2 dumping tables
4 pouring benches
3 furnace hoods
2 charcoal pans
2 slag pans
4 large conical moulds
4 ash cans
3 shoe moulds
36 gold anode moulds
24 fine gold "
12 silver merchant bar moulds
24 " anode "
6 - 1000 oz. moulds for fine silver
8 ingot moulds for cathodes, gold
32 ingot boxes
4 clipping boxes
4 pres. pouring tongs
1 " ring "
2 " charging "
1 " stirring "
3 " pick up "
1 " crucible "
4 furnace pokers
3 cuspidors
2 mirrors
Tools--hammers, wrenches, etc.
Pickling tank waste

Refinery (continued):

31 prs. white rubber gloves
 10 " asbestos mitts
 31 " black rubber gloves
 16 " buck gloves
 15 trucks
 2 trucks, ingot rolling
 1 bbl. powd. charcoal
 1 " gran. "
 350 lbs. silica
 400 " borax glass
 300 " bicarb. of soda
 300 " sulphate of iron
 400 " rock salt
 350 bone ash
 100 lbs. nitre
 600 " sulphuric acid, com.
 900 " nitric " "
 960 " hydrochloric acid, com.
 35 gals. lard oil
 35 hard rubber baskets
 26 " " propellers
 1 flux box
 2 closets for supplies
 3 lead lined precipitating tanks
 2 slag pots
 1 smelter ladle
 1 wood filter for silver chloride
 1 steam shell
 2 lead lined copper tanks
 3 lead baskets
 3 long sleeve rubber gloves
 77 prs. sleeves
 8-2/3 doz. aprons
 1 bolt cheese cloth
 28 lbs. gelatine
 400 prs. carpet mitts
 50 lbs. nitric acid, C.P.
 200 " sulphuric acid, C.P.
 75 " hydrochloric acid, C.P.
 40 " ammonium hydrate "
 4 tons slab zinc
 600 lbs. fire clay

Ingot Melting room:

4 trowels
 1 sledge hammer, 11 handles
 9 hand hammers
 3 brick hammers
 2 monkey wrenches, 14"
 1 stilson wrench, 10"
 2 screw drivers
 4 cold chisels
 4 crucible tongs
 1 crow bar
 2 oil cans, small
 2 extension lights
 2 box screens, 34"-24"
 1 screen, 18"
 1 pr. calipers
 2 prs. pliers

Ingot room (continued):

1 magnet
1 extension divider
2 electric fans
1 roll top desk
1 chair
2 benches for clipping boxes
1 lead lined sink
1 mirror
1 towel roller
1 topping shear and 10 h.p. motor
8 Rockwell furnaces
5 pouring benches
2 dumping benches
28 moulds, D. eagle,
14 " Eagle
36 " H. Eagle
56 " H. Dollar
54 " Q. Dollar
18 " Eagle (old size)
24 " shoe
4 " conical, 12"
3 " " 10", 8", 6"
9 prs. tongs, gold bar
2 " " silver
5 " " pouring
3 " " gold stirrer
4 " " floor grate
3 " " crucible
1 " " ice
8 " " ingot
12 sheet iron scoops
12 poker
1350 sq. ft. floor grating
3 waste cans, 15x24
5 charcoal pans
6 slag pans
12 skimming pans
2 grease pans
8 furnace hoods
2 stirring guards
1 stamping bench
1 filing bench
1 set steel figures
1 anvil
1 work bench
1 case for assay samples
1-2 compartment locker
1 water cooler
1 bench vise
1 ingot stand
2 sets pickling tanks, lead lined
2 pickling racks
2 trucks
1 oil storage tank
2 bundling presses for clippings
3 gal. iron water buckets
10 silver stirrers
3 #80 crucibles
1 #80 " Dixon
20 #14 crucibles
10 #4 pouring cups
22 #3 " "
16 #2 " . "

Ingot room (continued):

3 - 4" rings
 2 - 2" "
 4 gold stirrers
 4 floor brushes
 4 flat brushes
 2 wire brushes
 9 brass brushes
 1 - 2" steam syphon
 22 - 14" files
 20 prs. Buck mitts
 24 " " gloves
 23 aprons
 7 " asbestos cov'd
 40 prs. sleeves
 45 asbestos mitts
 1 pr. sleeves, asbestos cov'd
 10 yds cheese cloth
 14 - 1/2" Powell angle needle valves
 6 balls cotton twine
 1 bottle Phenol sodique
 48 gals. lard oil
 200 lbs. MXX charcoal
 250 " MBXX "
 100 " Bicarb. Soda
 350 " Nitre
 150 " Borax glass
 25 base tile
 5 top slabs
 27 furnace tile, body
 16 " "
 22 hood tops
 530 fire brick
 400 lbs. fire clay
 1 flux bin

Swaps Cellar:

3 shovels
 2 pcs. ~~xxx~~ brass screen, ea. 36x60
 2 monkey wrenches, 8", 16"
 2 brushes, floor, bench
 1 amalgamating pan, 17"
 1 water bucket
 1 wheel harrow
 2 lbs. cyanide
 1/2 lb. sodium metal
 95 lbs. quicksilver
 1 doz. stove bolts
 1 pr. cotton blankets
 1 - 3 lb. hammer
 40 ft. hose
 1 Pierce amalgamator
 9 bottles; 6 soup plates
 1 Elapass mill
 1 Jones sampler
 2 copper plates; 30x120 and 56x96
 2 settling tanks
 1 steam drier
 1 electric fan
 1 magnet

MINT OF THE UNITED STATES AT DENVER,

MELTER AND REFINER'S DEPARTMENT,

July 2, 1909.

RECEIVED of Frank M. Downer, Superintendent of the Mint of the United States at Denver, in redelivery after settlement, June 30, 1909, one hundred and sixty-seven thousand seven hundred and seventy-five and two hundred and thirty-two thousandths standard ounces of gold, and one hundred and sixty-one thousand thirteen and twenty-one hundredths standard ounces of silver, itemized as follows:

	Gold	Standard Ounces Silver
Gold Deposits -----	68,418.317 ✓	10,448.59 ✓
Silver " -----	7,106.603 ✓	28,795.72 ✓
Seattle Re-deposits -----	8,012.324 ✓	745.79 ✓
Salt Lake " -----	7,740.561 ✓	7,391.13 ✓
Refinery settlement bars--Gold ----	63,778.857 ✓	6,130.75 ✓
" " " Silver --	4,384.140 ✓	102,830.67 ✓
" " " Base ----	478.639 ✓	
	15.555 ✓	
Fine Gold -----		371.51 ✓
Fine Silver -----		3,320.00 ✓
Masse Melts -----	7,046.616 ✓	
Last Ingot Melt King -----	243.212 ✓	
Assayers Bars -----	382.751 ✓	561.89 ✓
Ingot Assay Samples -----	156.880 ✓	
Proof Gold -----	12.777 ✓	
" Silver -----		417.18 ✓
Totals -----	167,775.232 ✓	161,013.21 ✓

For millions
Melter and Refiner.

MINT OF THE UNITED STATES AT DENVER.

MELTER AND REFINER'S DEPARTMENT.

Modeling for Surplus returned by Melter and Refiner for 1909

2007 年 12 月 26 日

	Standard Ozs. Gold	Standard Ozs. Silver
Gal. Ingot	116.820	1,406.84
" " Deposits, gross 84.52	65.730	18.78
" in Refinery, excluding gain on Deposits	533.956	
" " Deposit Melting Room, ---metal	231.480	144.99
" " " " " " Tailings	30.550	110.00
" " " " " " returned by Assayer	19.721	188.71
" " " " " " settling well, ---metal	98.540	48.60
" " " " " " " " " " Tailings	70.380	77.93
Total gain	1,167.177	1,995.85
Surplus	209.732	1,416.03
Operating, Wastage	257.445	579.82

The gain from unreported fractions of assays was 480.56 fine ounces of gold; and the amount operated upon that produced said surplus was 9,042,995.2351 ounces, practically all of which was reported by the Assayer to the half point. The gain, therefore, was less than one-quarter (.2351) of a point on each assay; and the apparent operating shortage in percentage of legal allowance was, Gold, 9.22%; and Silver, 12.49%.

* "total" recovered by operations in Sweeps cellar from crucibles and fire bricks.

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

July 6, 1909.

Mr. A. A. Hassan,
Chairman Settlement Commission,
Denver Mint.

Dear Sir:

Responding to your recent request therefor, I respectfully present the following statement, showing in standard ounces the total amount of bullion delivered to the Ingot Melting room during the fiscal year 1909, and the amount of metal returned in ingots and bars, the recovery from sweeps and other sources, and the apparent gain:

GOLD		
Del'd to ingot room for ingots	2,866,333.080	
" " " " " bars	535.659	2,866,868.739
Returned in ingots	2,794,078.300	
" " bars	535.659	
" " tops, etc.	71,555.670	2,866,166.689
Apparent loss		702.050
Recovery from sweeps	733.194	
" " other sources	349.976	1,083.170
Apparent total gain		380.120

MINT OF THE UNITED STATES AT DENVER,
MELTER AND REFINER'S DEPARTMENT,

2

SILVER

Balance forward	2,868,371.81	
" " " " " "	345.07	2,862,717.70
Delivered to Treasury	2,004,277.05	
" " " " " "	345.95	
" " " " " "	85,718.96	2,860,733.70
Approved: 1907		2,372.00
Balance from Treasury	1,654.81	
" " " " " "	943.58	2,598.39
Approved: Total gain		220.39

Respectfully submitted,

Melter and Refiner.

1. Product: None -- all settlement expense.

2. Costs:	a. Labor	\$783.05
	b. Crucibles	60.00
	c. Acids	25.04
	d. Supplies	101.86
	e. Mitts, gloves, aprons	14.50
	f. Chemicals	0.00
	g. Sweeps Cellar	197.79
	h. M. & R. Gen'l	208.33
	i. Fuel	24.00
	j. Power	46.90
	k. Repairs	404.07
	l. Light & ventilation	50.00
	m. Incidentals	1.00
	n. Assays	0.00
	o. Sick leave, vacation & holidays	555.99

Total \$2,472.63

3. New Equipment 770.39 (including labor \$471.50)

Total expense \$3,242.92

Nos. 4, 5, 6, 7, and 9--no items

8. Average cost per ounce operated upon for fiscal year .013789

10 " " " crude ounce " " " " " .022973

SWEEPS CELLAR

1. Produce:	a. Gold, std. ozs.	367.937
	b. Silver " "	522.38
	c. Tailings, avoird. lbs.	20,315

2. Costs:	a. Labor	\$139.50
	b. Power	88.27
	c. Light & ventilation	44.76
	d. Supplies	11.53
	e. Repairs	9.25
	f. Incidentals	0.50
	g. Sick leave &c	81.50

Total \$375.31

3. New Equipment 0.00

Total expense \$375.31

4. Tailings contained: a. Gold 89.758
b. Silver 369.08

5. Percentage of extraction: a. Gold 80.3
b. Silver 58.6

6. Departments charged as follows:

Refinery	\$197.79
Ingot room	177.52
Total	\$375.31

June/09

INGOT ROOM

1. Amount of bullion melted:	a. Gold	216,704.360
	b. Silver	<u>68,753.790</u>
	Total	285,458.150
2. Amount of good ingots:	a. Half Eagles	211,132.990
	b. Quar. Dollars	<u>64,455.75</u>
	Total	275,588.740

	Gold		Silver		Total
	Total	Per oz.	Total	Per oz.	
a. Labor	\$276.07	.001307	\$138.04	.002141	\$414.11
b. M. & R. Gen'l	138.89	.000857	69.45	.001077	208.34
c. Mitts & gloves	4.75	.000032	4.00	.000062	8.75
d. Crucibles	21.68	.000102	8.84	.000137	30.52
e. Sweeps cellar	118.35	.000560	59.17	.000917	177.52
f. Supplies	19.29	.000091	4.25	.000065	23.54
g. Fuel	43.20	.000204	23.10	.000358	66.30
h. Power	28.40	.000134	14.20	.000220	42.60
i. Light & ventila'n	33.33	.000157	16.67	.000258	50.00
j. Repairs	18.91	.000089	9.46	.000146	28.37
k. Incidentals	0.47	.000002	0.25	.000003	0.70
l. Sick leave &c	175.79	.000832	87.89	.001363	263.68
m. Alloy copper	109.15	.000516	33.92	.000526	143.07
	<u>\$938.28</u>		<u>\$469.22</u>		<u>\$1,457.50</u>
Work for Coiner	101.98		50.99		152.97
Totals	\$886.30	.004197	\$418.23	.000488	\$1,304.53

(Settlement costs in above amounts, \$105.46)

4. New Equipment

0.00

Total expense

\$1,304.53

5. Percentage of good ingots:	a. Gold	97.4
	b. Silver	98.0

6. Average cost of ingots for fiscal year:	a. Gold	.003642
	b. Silver	.004020

7. Cost distributed as follows:	a. Half Eagles	\$886.30
	b. Quarter dollars	<u>418.23</u>
	Total	\$1,304.53

